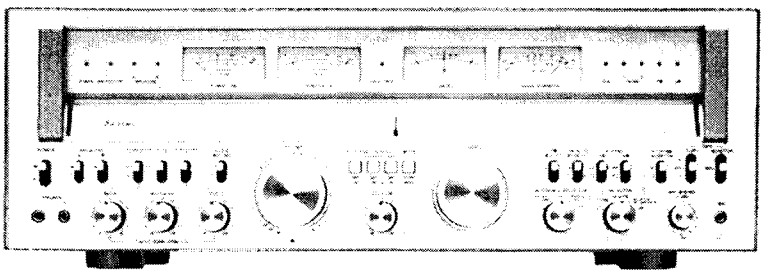
SERVICE MANUAL

PURE POWER DC STEREO RECEIVER

SANSUI G-22000 G-33000



Sansui

SANSUI ELECTRIC CO., LTD.

SPECIFICATIONS

POWER AMP SECTION

Power output
Min. RMS, both channels driven, from 5 to 20,000 Hz, with no more than 0.009 % total harmonic distortion.
<G-22000>
220 watts per channel into 8 ohms
<G-33000>
300 watts per channel into 8 ohms
Load impedance . . . . . 8 ohms
Total harmonic distortion
. . . . . less than 0.009 % at or below rated min. RMS power output
less than 0.002 % at 1 kHz, 300 watts power output
Intermodulation distortion (70 Hz : 7 kHz = 4:1 SMPTE method) . . . . . less than 0.009 % at or below rated min. RMS power output
Slew rate . . . . . 175 V/μsec
Rise time . . . . . 0.7 μsec/V
Damping factor (5 Hz to 20 kHz, both channels driven)
. . . . . 60 into 8 ohms
Frequency response (at 1 watt)
. . . . . DC to 300,000 Hz, +0 dB, −3.0 dB
Hum and noise (short-circuit, A-network)
. . . . . 120 dB
Input sensitivity and impedance (at 1 kHz)
POWER AMP IN . . . 1.5 V/47 kilohms
Channel separation (at 1 kHz)
. . . . . 100 dB

PREAMP/TUNER SECTION

Audio section
Frequency response
AUX (Overall, at 1 watt)
. . . . . 5 to 50,000 Hz, +0.2 dB, −1.5 dB
PHONO (RIAA) . . . 20 to 20,000 Hz, ±2 dB
Input sensitivity and impedance (at 1 kHz)
PHONO-1 . . . . . 2.5 mV/33, 47, 100 kilohms
PHONO-2 . . . . . 2.5 mV/47, 100 kilohms
(Max. input capability: 350 mV at 1 kHz, less than 0.009 % total harmonic distortion.)
MIC . . . . . 6 mV/10 kilohms
TAPE-1, 2 PLAY, AUX
. . . . . 150 mV/47 kilohms
Output level (at 1 kHz)
TAPE-1, 2 REC (pin jacks)
. . . . . 150 mV
TAPE-2 REC/PLAY (DIN socket)
. . . . . 43 mV
PREAMP OUT . . . . 1.5 V
(Maximum output level: 10 V with no more than 0.009 % total harmonic distortion)
Total harmonic distortion (at 1 kHz, 2 V)
AUX . . . . . less than 0.002 %
Hum and noise (short-circuit, A-network)
PHONO-1, 2 . . . . . 87 dB
TAPE-1, 2 PLAY, AUX
. . . . . 105 dB
Channel separation (at 1 kHz)
PHONO-1, 2 . . . . . 65 dB
TAPE-1, 2 PLAY, AUX
. . . . . 75 dB
Controls
BASS . . . . . ±10 dB at 50 Hz
TURNOVER 400 Hz, 200 Hz
MIDRANGE . . . . . ±5 dB at 1.5 kHz
TREBLE . . . . . ±10 dB at 10 kHz
TURNOVER 2.5 kHz, 5 kHz
SUBSONIC FILTER . −3 dB at 16 Hz (6 dB/oct)
HIGH FILTER . . . . −3 dB at 3 kHz (6 dB/oct)
LOUDNESS (VOLUME control: −30 dB position)
. . . . . 8 dB at 50 Hz
6 dB at 10 kHz
AUDIO MUTING . . −20 dB

SPECIFICATIONS

Design and specifications subject to change without notice for improvements.

FM section

Tuning range	88 to 108 MHz
Usable sensitivity	
Mono IHF	8.7 dBf (1.5 μV)
DIN	0.9 μV
Stereo IHF	15.0 dBf
50 dB quieting sensitivity	
Mono	12.5 dBf
Stereo	34.0 dBf
Signal to noise ratio (at 65 dBf)	
Mono	82 dB
Stereo	77 dB
Hum and noise (at 65 dBf)	76 dB
Frequency response	30 to 15,000 Hz +0.2 dB, −1.0 dB
Distortion (at 65 dBf) (WIDE)	
Mono	less than 0.06 % at 100 Hz less than 0.05 % at 1,000 Hz less than 0.08 % at 6,000 Hz
Stereo	less than 0.1 % at 100 Hz less than 0.07 % at 1,000 Hz less than 0.1 % at 6,000 Hz
Capture ratio	0.9 dB
Alternate channel selectivity (at 400 kHz)	
WIDE	55 dB
NARROW	90 dB
Spurious response ratio	110 dB
Image response ratio	110 dB
IF response ratio	110 dB
Stereo separation	40 dB at 100 Hz 50 dB at 1,000 Hz 40 dB at 10,000 Hz 30 dB from 30 to 15,000 Hz
Antenna input impedance	300 ohms balanced 75 ohms unbalanced

AM section

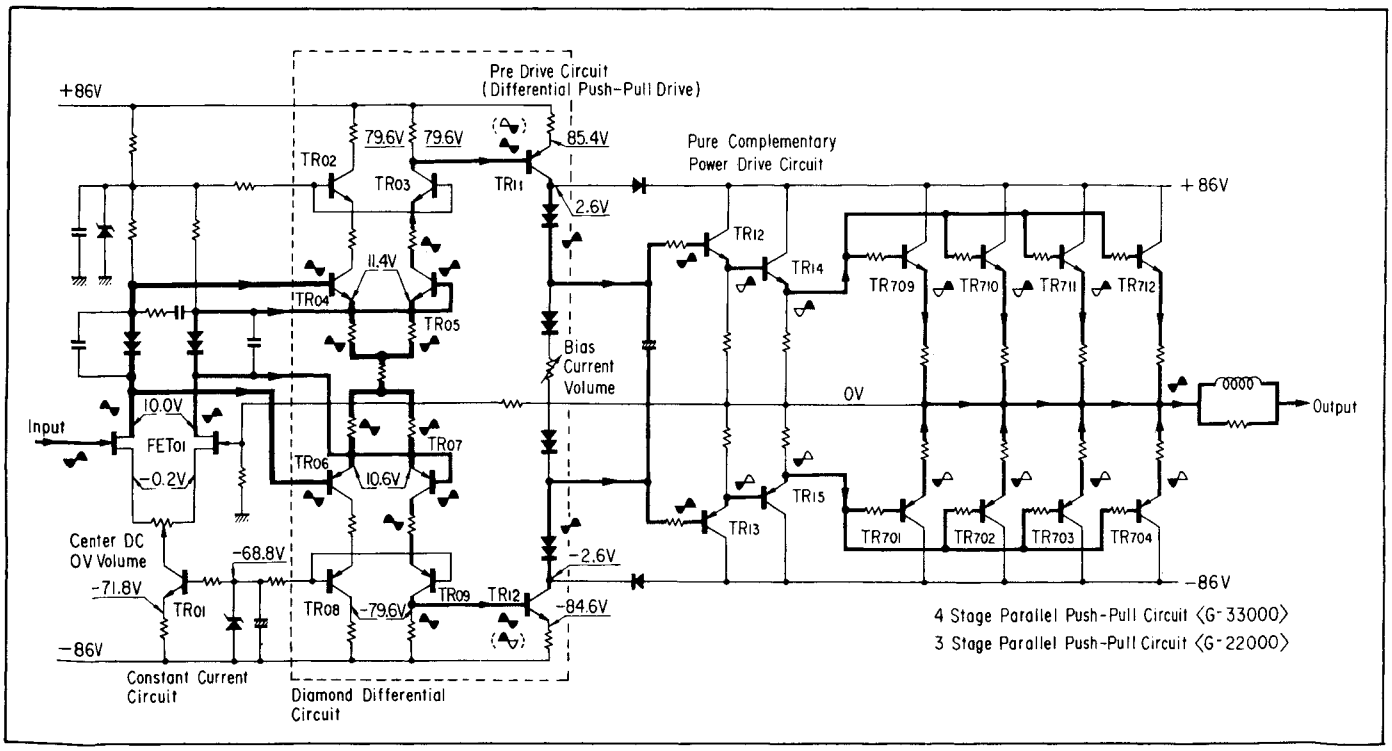
Tuning range	530 to 1,600 kHz
Usable sensitivity (bar antenna)	
NARROW	50 dB/m (300 μV/m)
Selectivity	
NARROW (±10 kHz)	30 dB
WIDE (±20 kHz)	30 dB
Signal to noise ratio	50 dB
Image response ratio	70 dB at 1,000 kHz
IF response ratio	70 dB at 1,000 kHz
Frequency response	
NARROW	30 to 3,000 Hz (−6 dB)
WIDE	20 to 8,500 Hz (−6 dB)

OTHERS

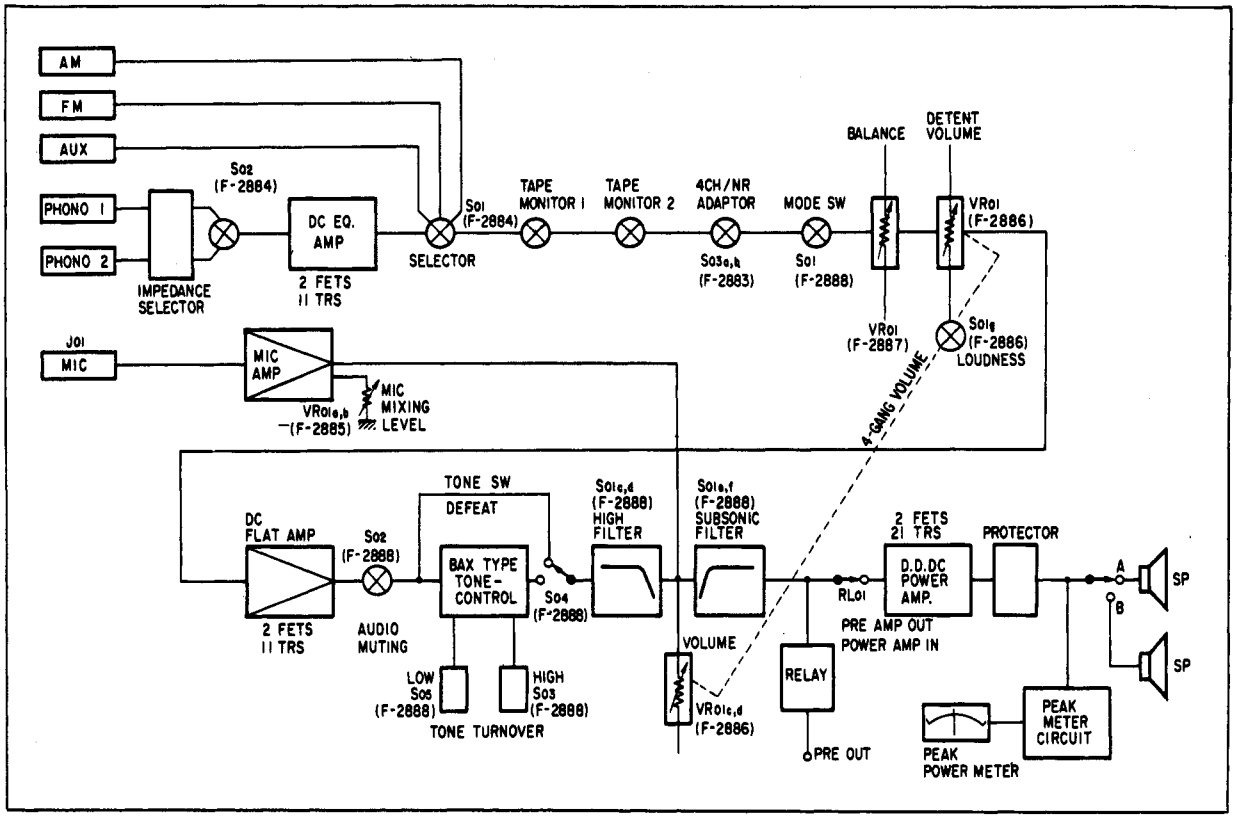
Power requirements	
Power voltage	100, 120, 220, 240 V (50/60 Hz)
Power consumption	
<G-22000>	
Rated consumption	950 watts, 1,100 VA
<G-33000>	
Rated consumption	1,100 watts, 1,300 VA
Dimensions	636 mm (25-1/16") W 227 mm (8-15/16") H 553 mm (21-13/16") D
POWER AMP SECTION	634 mm (25") W 225 mm (8-7/8") H 286 mm (11-5/16") D
PREAMP/TUNER SECTION	636 mm (25-1/16") W 227 mm (8-15/16") H 283 mm (11-3/16") D
Weight	
<G-22000>	42.1 kg (92.8 lbs) net
POWER AMP SECTION	26.0 kg (57.3 lbs) net 28.3 kg (62.4 lbs) packed
PREAMP/TUNER SECTION	16.1 kg (35.5 lbs) net 18.3 kg (40.3 lbs) packed
<G-33000>	45.4 kg (100.1 lbs) net
POWER AMP SECTION	29.3 kg (64.6 lbs) net 31.6 kg (69.7 lbs) packed
PREAMP/TUNER SECTION	16.1 kg (35.5 lbs) net 18.3 kg (40.3 lbs) packed

1. BLOCK DIAGRAM

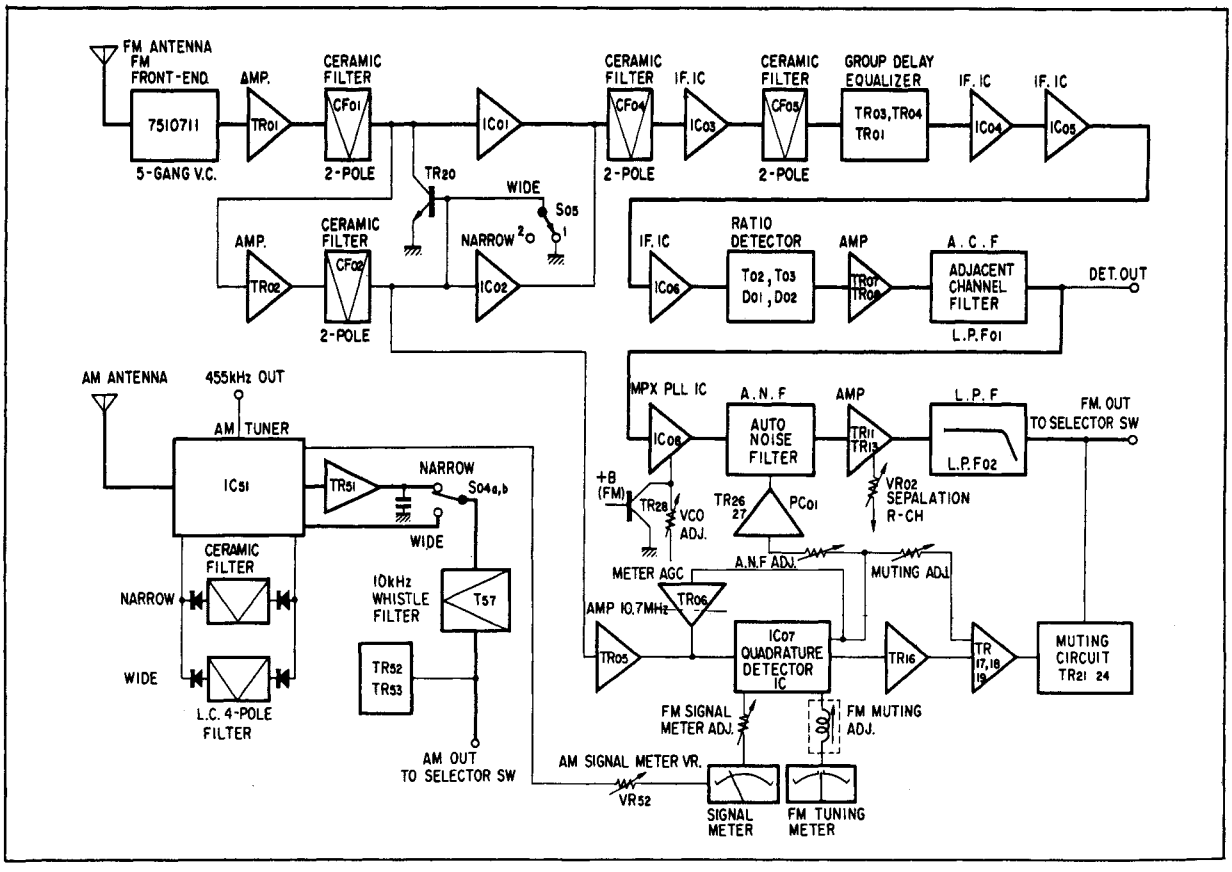
1-1. Power AMP Section



1-2. Pre Main Section



1-3. Tuner Section



2. OPERATION OF TYPICAL CIRCUIT

2-1. Operation and Features of Diamond Differential DC Circuit

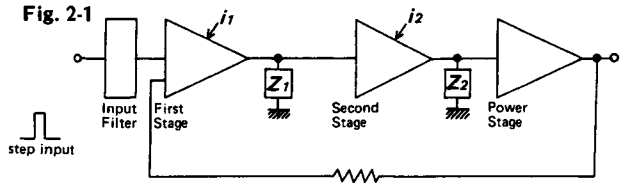
1. Features

1) The D.D. DC circuit has been developed based on our latest technology and our sound policy which have been our tradition since the production of AU-607/707. That is, the performance of the amplifier is positively pursued and improved in dynamic characteristic as well as in static characteristic.
2) By improving open-loop characteristic to perform NFB properly and providing sufficient current margin for the circuit, TIM (transient intermodulation) distortion has been able to be reduced.

2. NFB and TIM distortion

As shown in Fig. 2-1, in a conventional power amplifier, an NF signal delays due to impedance elements (time constant elements), and is operated with an input signal. Since the phase of the NF signal does not coincide with that of input signal due to delays in time, instantaneous feed-back is not possible for a signal containing transient component, such as music.
As a result, the waveform of output signal clips instantaneously (occurrence of TIM distortion). For this reason, the input signal can not be correctly amplified, and distortion is incurred.

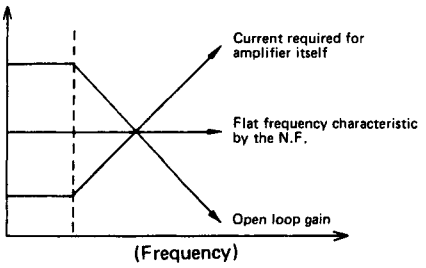
Fig. 2-1



Taking TIM distortion and NFB into consideration, NFB is very effective for the improvement of characteristic in the following points:

1) Improvement of non-linear distortion.
2) Stabilization of gain against the temperature change and fluctuation of power source voltage.
3) Reduction of amplifier noise.
4) Improvement of input and output impedance.

Fig. 2-2



On the other hand, Fig. 2-2 shows the change of the required current due to NF. This figure shows that it is necessary to increase the required current of the circuit in order to increase the NF and the more the open-loop characterisitc becomes narrow, the more the required current becomes large. This means that if ample current margin is not available, TIM distortion will be caused.

3. Prevention of TIM distortion

The preventive methods of TIM distortion are as follows:

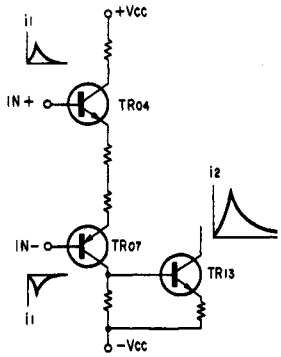
1) To minimize NF amount.
2) To apply local feedback to the voltage amplification stage in order to improve main feedback.
3) To apply as large current and voltage as possible to the voltage amplification stage.
4) To attach previously a filter so that a transient input does not enter into the input stage beyond the response of the amplifier.
5) To adopt an input lagging device in addition to the conventional mirror type of lagging device in order to achieve 2 pole phase compensation, and at the same time to compensate by phase advancement to enhence stability.

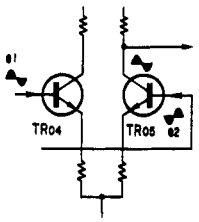
These models (G-22000/33000) adapt the above mentioned preventive methods 1) through 5). Especially, D.D. DC circuit is used to achieve the"TIM distortion preventive method"3).
As shown in the block diagram of Fig. 2-1, when current required for each voltage amplification stage of the amplifier is calculated, assuming that the most severe input (an input which is large enough to operate the amplifier and contains infinite frequency components) is applied to the amplifier, it is found out that large current is required for the second and successive stages. Therefore, the D.D. DC circuit is placed at this point to prevent TIM distortion.

4. Operation of Diamond Differential DC circuit for Large Current Drive

* D.D. DC circuit which is one of methods to prevent TIM distortion can supply large current required an amplifier itself.

1) Fig. 2-5 shows the fundamental circuit of D.D. DC circuit. TR04 and TR05 as well as TR06 and TR07 consist of the voltage differential circuit. On the other hand, TR04 and TR07 as well as TR05 and TR06 consist of the current differential circuit.
Fig. 2-3 shows the current differential circuit.
Fig. 2-4 shows the voltage differential circuit.
In Fig. 2-5, TR04 and TR05 as well as TR06 and TR07 perform voltage differential amplification at the normal signal frequency band. When a signal containing transient and high frequency component is applied, the operation of this stage shift from voltage differential amplification to current differential amplification of TR04 and TR07 as well as TR05 and TR06, which let the large current flow into this stage. Above function results the improvement of rise time and slew rate, in another word the reduction of TIM distortion.
2) The detailed operation of current differential circuit is as follows: TR04 and TR07 consist of complementary circuit in Fig. 2-3 and have a out of phase input respectively, therefore, only when a transient signal including (+) side components to TR04 and at (−) to TR07 is applied, this circuit functions and outputs only half a wave but large current. TR05 and TR06 perform the similar function in Fig. 2-5 and the outputs of TR05 and TR07 are out of phase and half a wave that TR12 and TR13 in next stage function as a push-pull operation and the large current can be flowed.





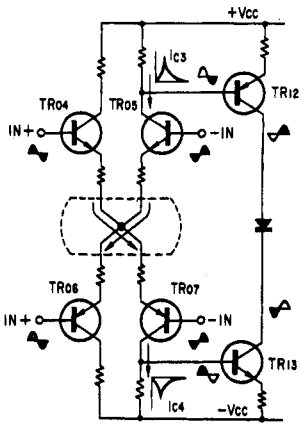


Fig. 2-3 (Complementary differential) Fig. 2-4 (Voltage differential circuit) Fig. 2-5 (Fundamental of D.D. DC circuit)

* In this Fig. 2-5 the cascode connection consisting of TR02, TR03, TR08 and TR09 is omitted.

2-2. Operation of AM IF-Band Selector Circuit

1. AM IF-BAND Selector Circuit

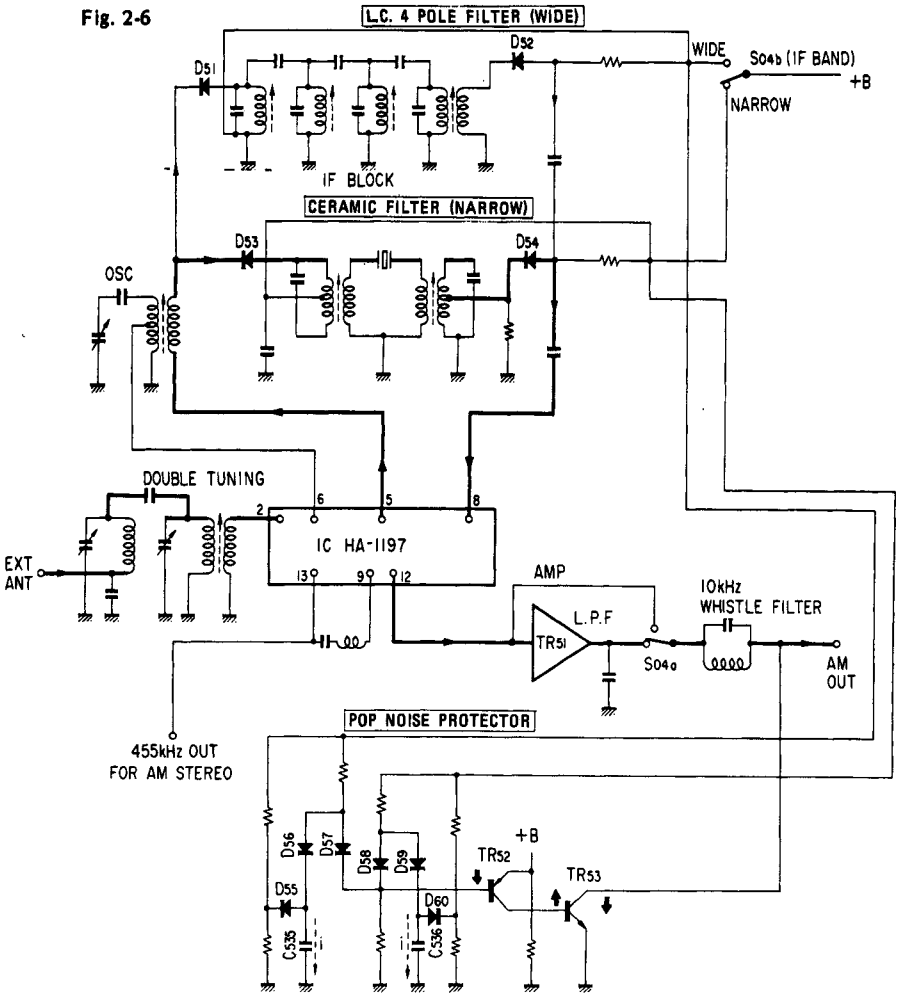
This IF stage provides both ceramic filter circuit for narrow band and 4-pole filter circuit for wide band, and its band width is selected by switching +B.

As diodes exists at input & output of the IF filter circuit, IF signal can hardly pass through this circuit, however, when +B is applied to these diodes, they become conductive that the circuit functions.

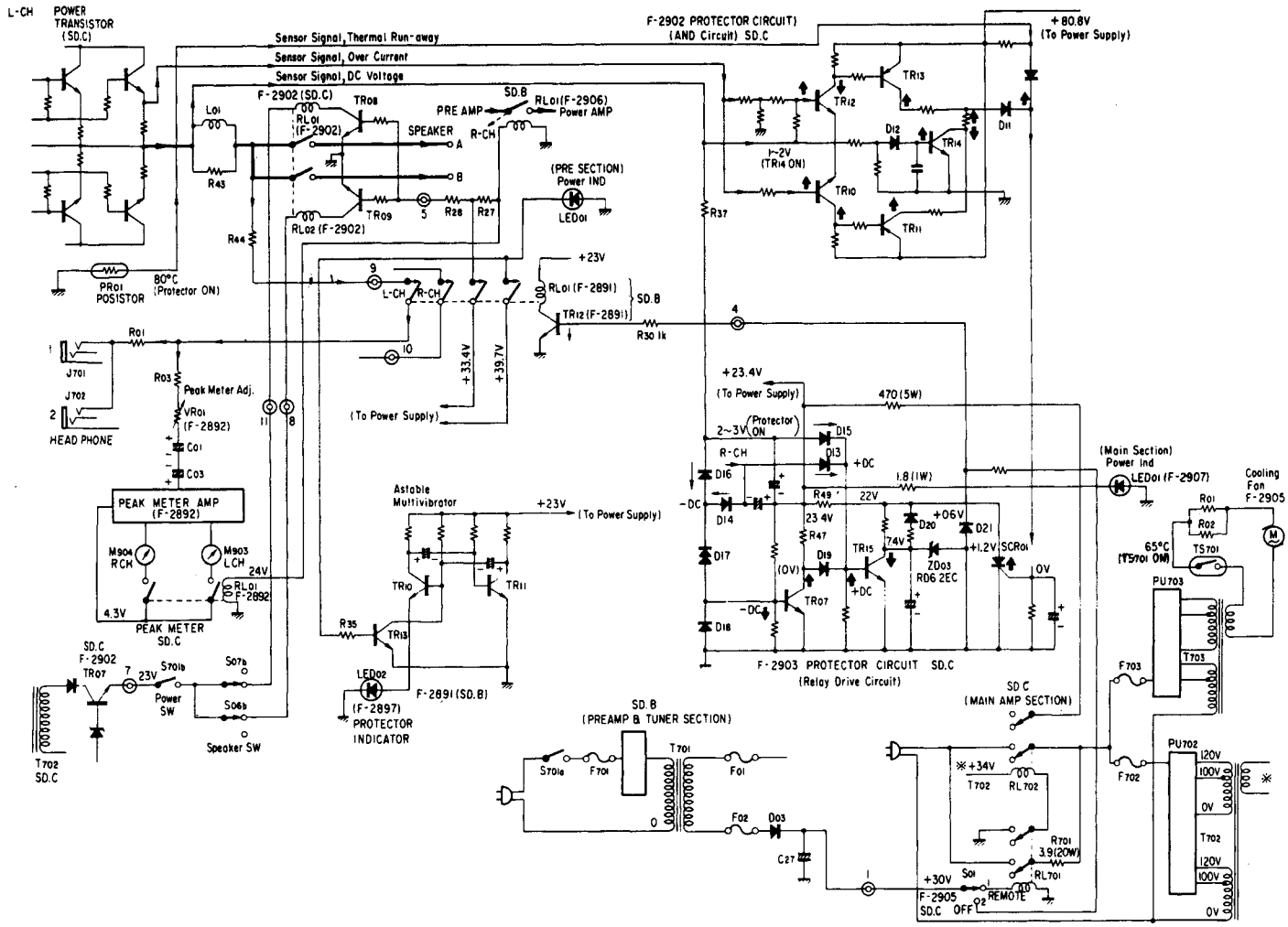
* Protector Circuit against Pop-noise occuring when AM IF-BAND selector being switched.

When switching AM IF-BAND selector, +B is also switched. At the moment, charging current flows into capacitor C535 or C536, which makes base voltage of TR52 decrease, thereby TR52 turns to ON, then TR53 to ON that the AM output is grounded. After the capacitor has been charged, the base voltage of TR52 is increased and makes TR52 OFF and TR53 OFF that the AM muting is released.

Fig. 2-6



2-3. Operation of Power Circuit



1. Power Supply System

1) When turning ON the power switch of tuner & pre-amplifier section, +30V is applied to connector pin No. 1 of pre & power-amplifier section.
2) The D.C. voltage applied from connector pin No. 1 makes relay RL701 ON when power switch of power-amplifier remains ON. By this, power transformers for power-amplifier, T702 and T703 function through inrush absorber R701, while power-amplifier is ready to operate by grounding secondary winding of relay RL702.
3) After a voltage is applied to primary winding of power transformer T702, inrush absorber R701 is released to turn ON the RL702 by the D.C. voltage detected from secondary winding of the power transformer. Moreover, relay RL01 (RL02) at output circuit of power-amplifier turns ON that output is joined with speaker.

2. Operation of Protector Circuit (Relay Drive Circuit)

1) When a voltage from over current detector circuit is applied to gate of SCR01, it turns ON that anode (+side) voltage drops down until 1.2V.
2) After SCR01 turns ON, the collector voltage of TR15 is decreased that a voltage is not added to +side of zener diode, also not to base of TR12 through D21, R30. By this, TR12 turns OFF, so the relay RL01 to OFF.
3) When RL01 turns OFF, base voltage of TR08 & TR09 are not supplied, which makes RL01, RL02 OFF that amplifier output and speakers are disconnected.
4) The operation when a voltage exceeding ±2V ~ ±3V appeared at amplifier output is as follow.
   At first, in case +D.C. voltage is arised, base voltage of TR15 is applied through D15 (D13) on Relay Drive Circuit. By this, the collector voltage is reduced and RL01, RL02 turn OFF just the same way as item 1), 2) above.
5) In case −D.C. voltage is appeared, base voltage of TR07 is lowered through D16 (D14), then TR07 turns OFF. Thereby, collector voltage of TR07 is increased that TR15 turns ON, and its collector voltage is decreased. The next operations are the same as item 4 of +D.C. voltage appeared.

3. Four-Fold Detection Type Protector Circuit

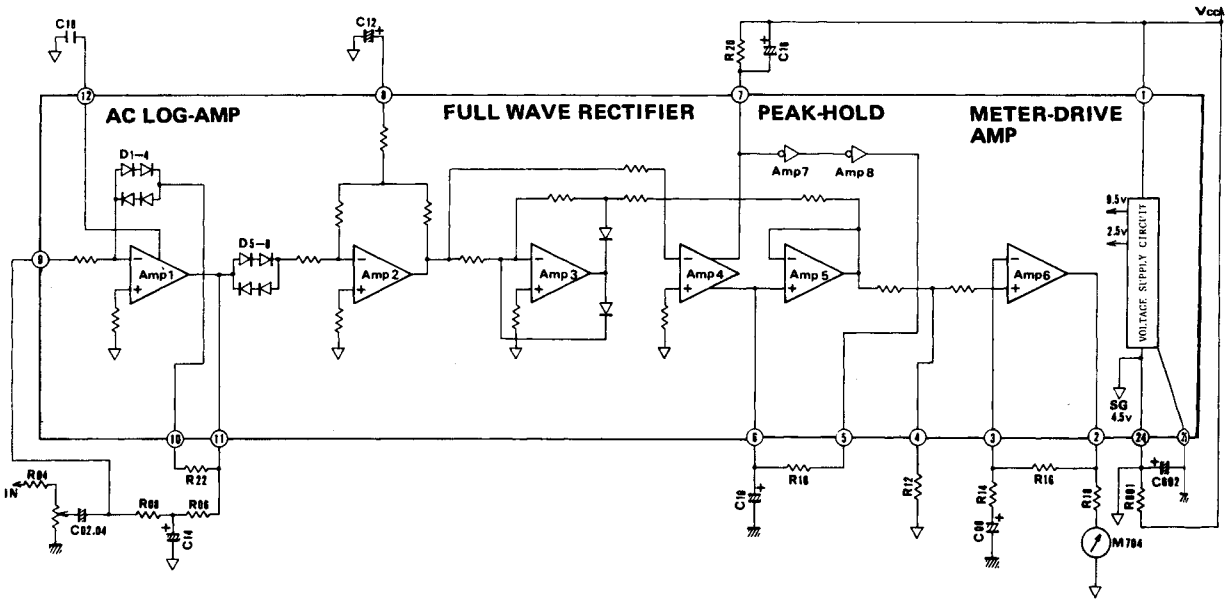
1) **Over-Heat Detection Circuit**
When temperature of thermal sensor installed on heat sink of power transistor becomes over 80°C, SCR01 turns ON, therefore power-amplifier being separated from speaker.
2) **D.C. Voltage Deviation Detection Circuit**
This circuit detects D.C. voltage over ±2V ~ ±3V generated at the load and makes protector circuit function. The operation is detailed in item 2. "Relay Drive Circuit".
3) **Over-Current Detection Circuit**
By detecting over-current flowing into power transistor, this circuit have protector circuit actuated. In case a current over the rated output flows, it is detected by protector circuit having AND function and turns TR12, TR13 ON, therefore, SCR01 on Relay Drive Circuit turns ON. The following operations are detailed in item 2.2) & 3) above.
4) **Load Voltage Detection Circuit**
Detecting whether the load is shorted or not by the load voltage (both edge voltage of speaker unit), this circuit drives the protector relay to balance the interrelation between the load voltage and over current sensor signal by AND circuit.

4. Operation of AND Circuit

1) At normal operation, TR14 included in AND circuit is ON by the music signal, therefore the collector of TR14 is equivalently grounded that TR10, TR11 of load voltage detection circuit is locked.
2) If the speaker is shorted, TR14 to which base the music signal is not applied, turns OFF, which makes load voltage detection circuit composed of TR10, TR11 OFF.
3) When load voltage detection circuit turns ON, SCR01 on Relay Drive Circuit becomes ON.

* When comparing over-current detection circuit of TR12, TR13 with load voltage detection circuit of TR10, TR11, the second one has the prompt dynamic sensitivity and actuates the protector circuit by the interrelation of AND circuit even though the flowing current is below the maximum output when the load is shorted.

2-4. Operation of CX-067, a drive IC for Peak Level Meter



1. CX-067, a drive IC for Peak Level Meter

This IC is installed for the purpose of driving Peak Level Meter and internally provides A.C. logarithmic amplifier, full wave rectifier circuit, peak hold circuit, and meter drive amplifier. Each circuit consisting of the IC is in a pair, that the meter can be driven by one IC. The function of IC is at first, converting the input signal logarithmically and the signal into full wave rectification, then holding the signal level for a certain time defined by external time constant. Moreover, after setting the gain of the signal, this IC drives the meter through drive circuit.

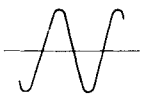
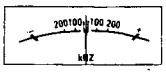
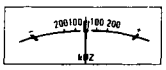
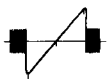
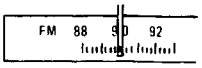
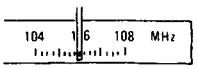
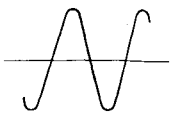
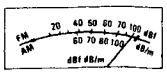
1) **A.C. Log-Amp.**
A.C. Log-Amp is composed of Amp-1, Amp-2, diode D1 ~ D8, capacitors, and resistors. Logarithmic conversion is performed by inserting D1 ~ D4 to negative feed-back loop of Amp-1 to make Amp-1 logarithmic characteristic. Diode D5 ~ D8 are installed to avoid leak current of diode, forward voltage, and temperature drift. Logarighmic characteristic is varied by changing R22. N.F. circuit composed of R6, R8, and C14 are inserted to stabilize the output of Pin-11 at no input signal. C18 attached externally to Pin-12 is for phase compensation of Amp-1.
2) **Full Wave Rectifier Circuit**
Logarithmically converted signal is rectified in half wave by Amp-3. Two times of this output of Amp-3 and logarithmically converted signal are added and rectified in full wave by Amp-4.
3) **Peak Hold Circuit**
This circuit consists of Amp-4, Amp-5 and inverters Amp-7, Amp-8, and external parts, C10, C16, R10, and R20. The output of Amp-4 charges C10, on the other hand, the charging current of C10 discharges through R10 while Amp-8 is ON, however, the current is held just as it is while Amp-8 is OFF because the input impedance of Amp-5 is extremely high. Namely, the period until Amp-8 turns ON is the holding time determined by time constant C16, R20 at Pin-7 and both ends voltage of C16. C10 and R10 define the returning time of Meter Indication.

3. ADJUSTMENT

3-1. Tuner Section

1. FM, IF, RF Adjustment and Dial Calibration (See Fig. 3-1 & Fig. 3-2 on Page 9)

Note: 1. SELECTOR . . . . . FM AUTO
2. FM AUTO NOISE FILTER . . . . . OFF
3. MODE . . . . . MONO
4. FM MUTING . . . . . OFF
5. FM IF BAND . . . . . WIDE
6. Connection . . . Connect the output of genescope to TP through 100pF ceramic capacitor.

STEP	SUBJECT	FEED SIGNAL FROM	FEED SIGNAL TO	MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
1.	Tuning Meter IF Coil	98 MHz ANT Input 10 dBf (4.8 dB) 1000 Hz (100% MODE) FM SSG	ANT terminal 300Ω	REC OUT L or R-CH VTVM & Scope	Tune Dial	Make symmetrical Sine Curve	
		98 MHz ANT Input 15 dBf (9.8 dB) 1000 Hz (100% MOD) FM SSG	Same as above	Signal Meter	T04 F-2920 IFT01 Front end	Max. Indication on signal meter	
			Same as above	Tuning Meter	T05 F-2920	Center on Tuning Meter	
		98 MHz ANT Input 65 dBf (59.8 dB) 1000 Hz (100% MOD) FM SSG	Same as above	Connector Pin 15 F-2920	T03 F-2920	0V	(Use Volt Meter)
		No Input	Same as above	Tuning Meter	Move the stub	Center on Tuning Meter	
2.	Discriminator Coil In case of using Genescope	Output 90 dB Genescope	VC03 Front end	Connector Pin 15 F-2920 Genescope	T02 F-2920	Steep linearity of S curve	
	Discriminator Coil, Groupe Delay Equalizer Coil. In case of using Dist Meter	98 MHz ANT Input 65 dBf (59.8 dB) 1000 Hz (100% MOD) FM SSG	ANT terminal 300Ω	REC OUT L or R-CH Dist Meter	T01, T02 F-2920	Min. T.H.D.	
3.	90 MHz Dial Calibration	90 MHz ANT Input 65 dBf (59.8 dB) 1000 Hz (100% MOD) FM SSG	Same as above	REC OUT L or R-CH VTVM & Scope	Dial pointer	Max. Indication on signal meter & VTVM & Scope Center Indication on Tuning Meter	
	106 MHz Dial Calibration	106 MHz ANT Input 65 dBf (59.8 dB) 1000 Hz (100% MOD) FM SSG	Same as above	Same as above	TC05 Front end		
4.	90 MHz RF Adj.	90 MHz ANT Input Minimum Value with sine wave 1000 Hz (100% MOD) FM SSG	Same as above	Same as above	T02, T03 T04 Front end	Same as above	
	106 MHz RF Adj.	106 MHz ANT Input Minimum Value with sine wave 1000 Hz (100% MOD) FM SSG	Same as above	Same as above	TC01, TC02 TC03, TC04 Front end	Same as above	
5.	Signal Meter Volume	98 MHz ANT Input 100 dBf (94.8 dB) 100 Hz (100% MOD) FM SSG	Same as above	Signal Meter	VR11 F-2920	100 dBf on Meter	

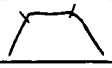
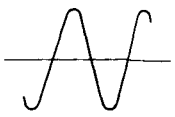
2. FM STEREO Adjustment (See Fig. 3-1 & Fig. 3-2 on Page 9)

Note: 1. MODE . . . . . STEREO

STEP	SUBJECT	FEED SIGNAL FROM	FEED SIGNAL TO	MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
1.	PLL VCO Adj.	98 MHz ANT Input 65 dBf (59.8 dB) FM SSG Pilot 19 kHz (9% MOD) SUB 1 kHz + Pilot (100% MOD) STEREO SG	ANT terminal 300Ω	Stereo indicator	VR01 F-2920	Light indicator	Adjust the VR01 within center of lighting level.
	PLL VCO Adj. In case of using Freq. counter.	98 MHz ANT Input 65 dBf (59.8 dB) FM SSG (no MOD)	Same as above	TP29 F-2920 Use Freq. counter	VR01 F-2920	19 kHz ±30 Hz	
2.	Separation	98 MHz ANT Input 65 dBf (59.8 dB) FM SSG Pilot 19 kHz (9% MOD) R Mode 1 kHz + Pilot (100% MOD) STEREO SG	Same as above	REC OUT L-CH VTVM & Scope	VR02 F-2920	−45 dB	Confirm separation L-CH → R-CH
3.	Muting level & indicator level	98 MHz ANT Input 15 dBf (9.8 dB) FM SSG Pilot 19 kHz (9% MOD) SUB 1 kHz + Pilot (100% MOD) STEREO SG	Same as above	Stereo indicator	VR12 F-2920	Muting level 15 dBf (9.8 dB) Indicator lighting level 15 dBf (9.8 dB)	FM MUTING Switch ON
4.	Auto Noise Filter Adj.	98 MHz ANT Input 45 dBf (39.8 dB) 10 kHz (100% MOD) FM SSG	Same as above	REC OUT L or R-CH VTVM & Scope	VR13 F-2920	OUT −3 dB Standard (Auto Noise Filter OFF)	Auto Noise Filter Switch ON

3. AM IF Adjustment & Dial Calibration (See Fig. 3-1 & Fig. 3-3 on Page 9)

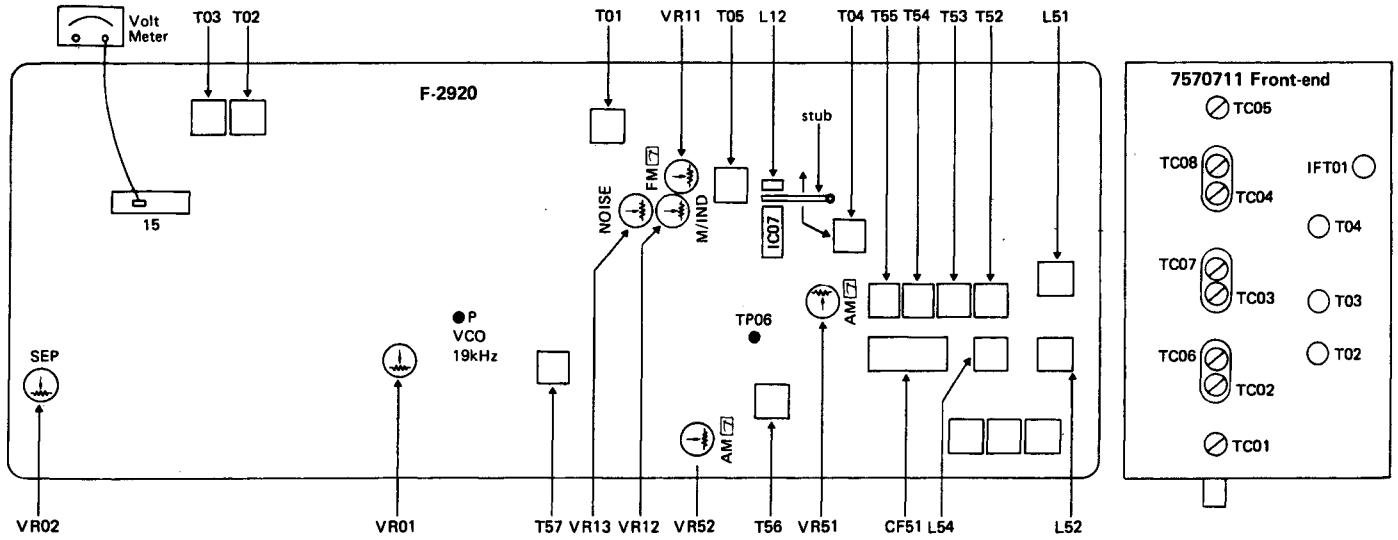
Note: 1. Selector . . . . . AM

STEP	SUBJECT	FEED SIGNAL FROM	FEED SIGNAL TO	MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
1.	IF Coil (NARROW)	Genescope Output 60 dB	TC07 Front end	TP06 F-2920	CF51, T56 F-2920	Max. IF waveform	AM IF BAND NARROW
	IF Coil (WIDE)	Same as above	Same as above	Same as above	T52, T53 T54, T55 F-2920	Same as above	AM IF BAND WIDE 
2.	600 kHz Dial Calibration	600 kHz ANT Input 60 dB 400 Hz (MOD 30%) AM SSG	AM ANT terminal	REC OUT L or R-CH VTVM & Scope	L54 F-2920	Max. Indication on Signal Meter & V.T.V.M.	
	1400 kHz Dial Calibration	1400 kHz ANT Input 60 dB 400 Hz (MOD 30%) AM SSG	Same as above	Same as above	TC07 Front end		
3.	600 kHz RF Adj.	600 kHz ANT Input 50 dB 400 Hz (MOD 30%) AM SSG	Same as above	Same as above	Bar Antenna, L52 F-2920	Same as above	
	1400 kHz RF Adj.	1400 kHz ANT Input 50 dB 400 Hz (MOD 30%) AM SSG	Same as above	Same as above	TC06, TC08 Front end	Same as above	

to be continued

STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
		FROM	TO				
4.	Signal Meter volume (WIDE)	1000 kHz ANT Input 80 dB 400 Hz (MOD 30%) AM SSG	Same as above	Signal Meter	VR52 F-2920	80 dB/m on meter	AM IF BAND WIDE
	Signal Meter volume (NARROW)	Same as above	Same as above	Same as above	VR51 F-2920	Same as above	AM IF BAND NARROW
5.	10 kHz WHISTLE FILTER	1000 kHz ANT Input 80 dB 10 kHz (MOD 30%) AM SSG	Same as above	REC OUT L or R-CH VTVM & Scope	T57 F-2920	Min. Output	

Fig. 3-1



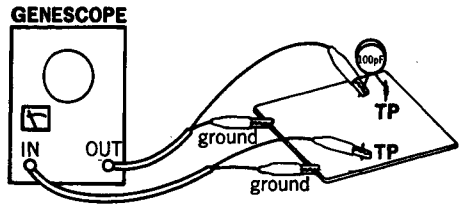


Fig. 3-2

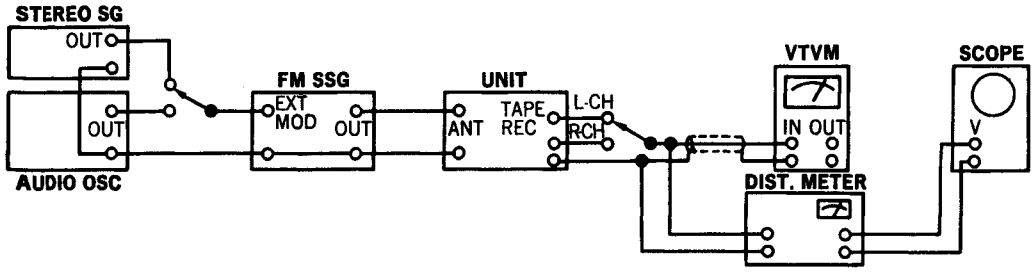
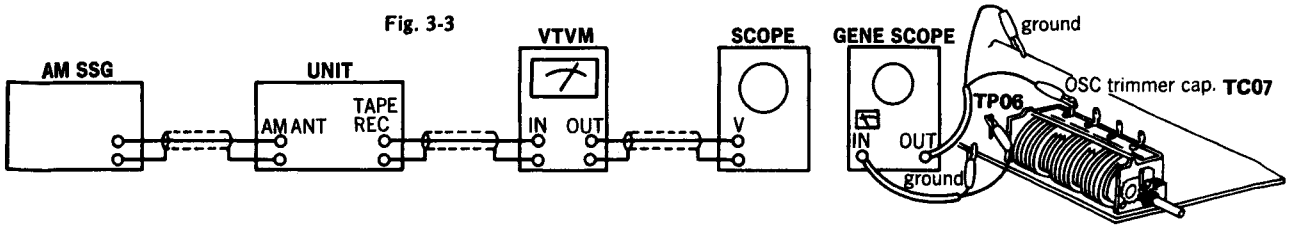


Fig. 3-3

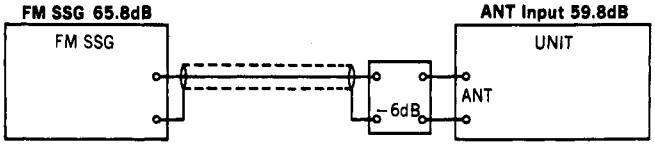


•NEW MEASUREMENT FOR FM.

Input signal level under the provision of IHFM-T-200, a new measurement method is indicated by available power ratio "dBf" To obtain approximate available power ratio "dBf", abstract 0.8 from attenuater indication of general FMSG (open load indication type); however, the former measurement, IHFM-T-100 is designated together too.
The way of modulation on IHFM-T-200 is shown below.

	modulation frequency	modulation mode	modulation fuctor
FM MONO	1000 Hz		100%
FM STEREO	1000 Hz	SUB	Pilot 9% Pilot + SUB 100%

• The relation between the standard input 65 dBf of IHFM-T-200 and the former indication "dB" is shown below.



• Abbreviations

Equipment

AM FM Generator Oscilloscope . . . . . Genescope
AM Standard Signal Generator . . . . . AM SSG
FM Standard Signal Generator . . . . . FM SSG
FM Stereo Generator . . . . . Stereo SG
Oscilloscope . . . . . Scope
Audio Oscillator . . . . . Audio Osc.
Distortion Meter . . . . . Dist. Meter

Others

Clockwise . . . . . CW.
Counterclockwise . . . . . CCW.
Antenna . . . . . ANT.
Modulation . . . . . MOD.

3-2 Audio Section

1. DC Equalizer Amp Circuit Board Adjustment (See the Bottom View on page 11.)

Note: 1. Master Volume . . . . . Minimum
2. For adjustment, run the unit for more than 3 minutes after the power is switched on.

STEP	SUBJECT	EQUIPMENT	MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
1.	DC 0V L-CH	DC Volt Meter	TP01 F-2880 (L-CH)	VR01, F-2880 (L-CH)	DC 0V ±3 mV	
2.	DC 0V R-CH	Same as above	TP01 F-2880 (R-CH)	VR01, F-2880 (R-CH)	DC 0V ±3 mV	

2. DC Flat Amp Circuit Board Adjustment (See the Bottom View on page 11.)

Note: 1. Master Volume . . . . . Minimum
2. For adjustment, run the unit for more than 3 minutes after the power is switched on.

STEP	SUBJECT	EQUIPMENT	MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
1.	DC 0V L-CH	DC Volt Meter	TP01, F-2899 (L-CH)	VR01, F-2899 (L-CH)	DC 0V ±3 mV	
2.	DC 0V R-CH	Same as above	TP01, F-2899 (R-CH)	VR01, F-2899 (R-CH)	DC 0V ±3 mV	

3. Driver Circuit Board Adjustment (See the Side View on page 11.)

Note: 1. Master Volume . . . . . Minimum
2. For adjustment, run the unit for more than 3 minutes after the power is switched on.

STEP	SUBJECT	EQUIPMENT	MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
1.	DC 0V L-CH	DC Volt Meter	L-CH Speaker Terminal	VR01, F-2900	DC 0V ±3 mV	
2.	DC 0V R-CH	Same as above	R-CH Speaker Terminal	VR01, F-2901	DC 0V ±3 mV	
3.	Bias Current L-CH	Same as above	TP Terminal (+) (−) F-2900	VR02 F-2900	DC 15 mV ±5 mV	o By turning VR02 counterclockwise, the bias current is decreased gradually.
4.	Bias Current R-CH	Same as above	TP Terminal (+) (−) F-2901	VR02 F-2901	DC 15 mV ±5 mV	

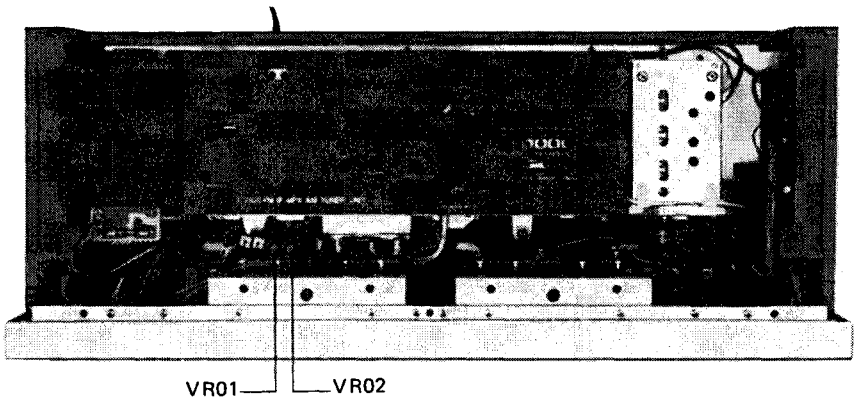
4. Power Meter Adjustment (See the Top view)

Note: 1. Master Volume . . . . . Maximum

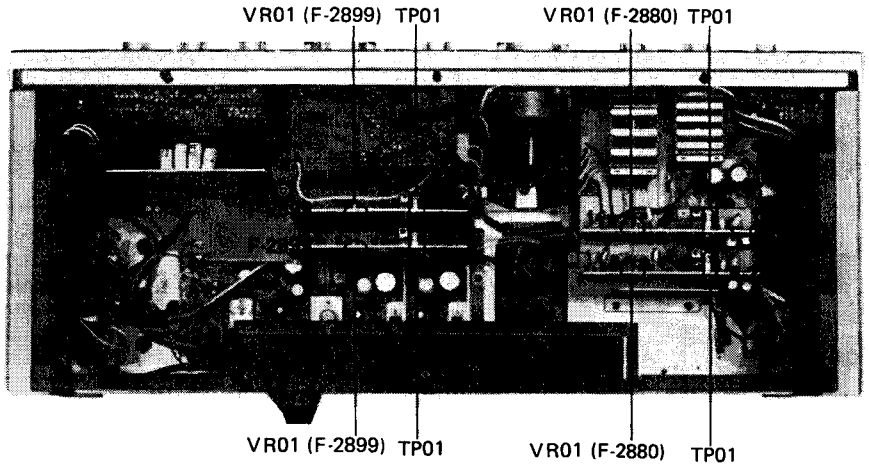
2. For this adjustment, run the unit for more than 2 minutes after turning on the power switch.

AUDIO OSCILLATOR		OUTPUT TERMINAL	ADJUST	ADJUST FOR
OUTPUT	CONNECTING POINT			
At 1 kHz sine wave, set the amplifier-output to 20V on both channels by adjusting O.S.C.-output level	Input terminal of Amplifier	Speaker terminal 8Ω VTVM Oscilloscope	VR01 (L-CH) VR02 (R-CH) F-2892	Set the pointer of power meter to 50W on both channels

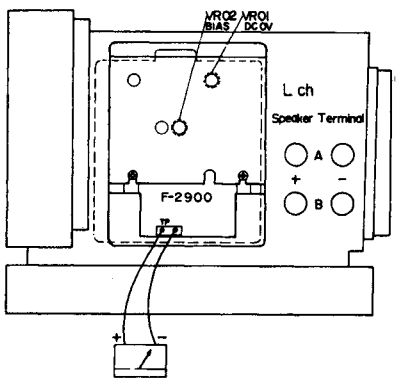
Top View of Tuner & Pre AMP Section



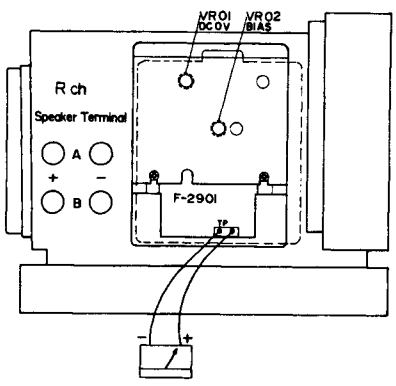
Bottom View of Tuner & Pre AMP Section



L-ch Side View of Power AMP Section



R-ch Side View of Power AMP Section



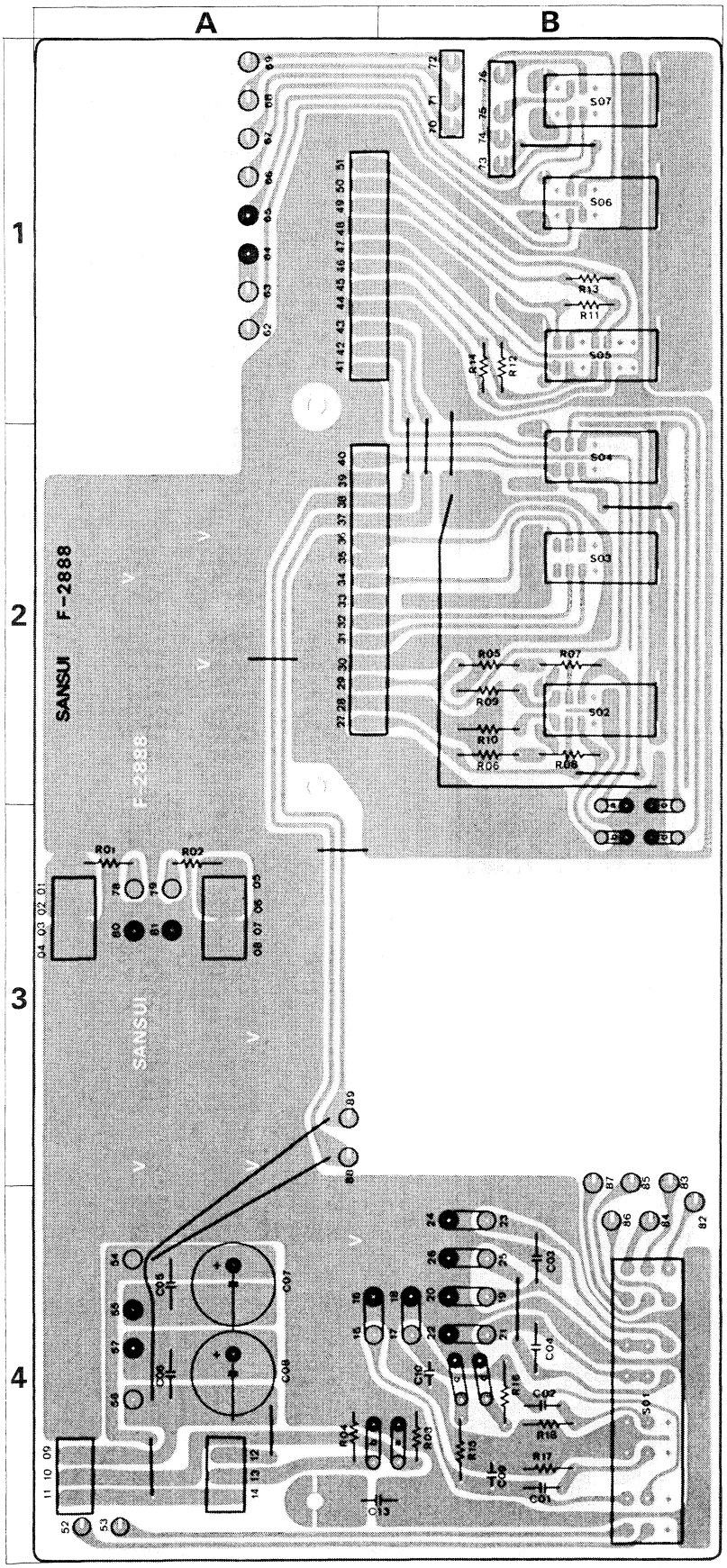
4. PARTS LOCATION & PARTS LIST

Since some of capacitors and resistors are omitted from parts lists in this Service Manual, refer to the Common Parts List for capacitors & resistors which was appended previously to each Sansui Manual.

4-1. F-2888 Mother Board for Flat Amp Circuit Board

(Stock No. 7596351●G-22000)
(Stock No. 7596491●G-33000)

Conductor Side



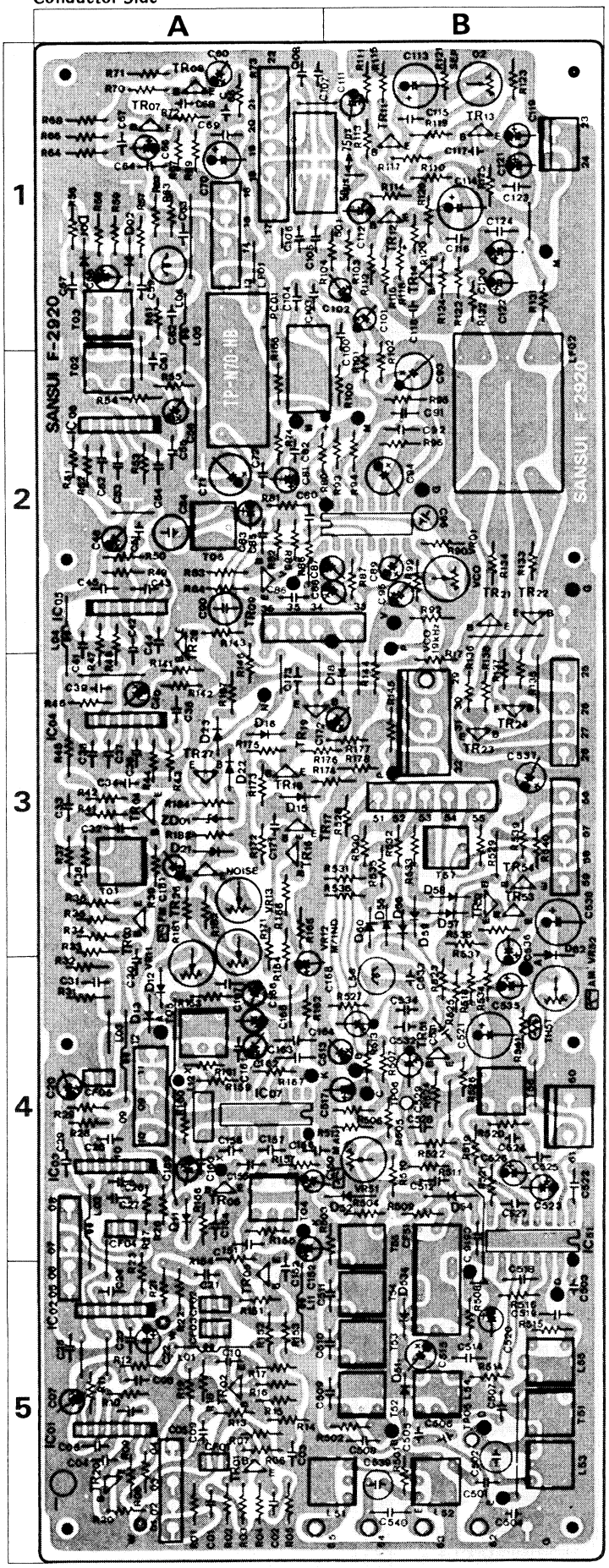
Parts List

Parts No.	Stock No.	Description	Position
C 07, 08	0584471	470μF 35V E.C.	4A
C 09, 10	0620821	820pF 50V P.C.	4B
R 05, 06	0231181	180Ω 1/2W M.R.	2B
R 07, 08	0231681	680Ω 1/2W M.R.	2B
R 09, 10	0231101	100Ω 1/2W M.R.	2B
R 15, 16	0231102	1.0kΩ 1/2W M.R.	4B
S 01	1131670	Push Switch, mode, high filters, subsonic, loudness	4B
S 02	1171780	Lever Switch, audio muting	2B
S 03	1171780	Lever Switch, turnover treble	2B
S 04	1171780	Lever Switch, tone	2B
S 05	1171800	Lever Switch, turnover bass	1B
S 06	1171780	Lever Switch, speakers A	1B
S 07	1171780	Lever Switch, speakers B	1B
	2410590	4P Pin Ass'y Type D	
	2410920	3P Pin Ass'y Type E	
	2420550	3P Connector Ass'y Type A	
	2420560	4P Connector Ass'y Type A	
	2420570	6P Connector Ass'y Type A	
	2420580	8P Connector Ass'y Type A	

4-2. F-2920 Tuner Circuit Board

(Stock No. 7521851●G-22000)
(Stock No. 7521871●G-33000)

Conductor Side



Parts List (F-2920)

Parts No.	Stock No.	Description	Position
●Transistors			
TR01	0306340 ~ 2	2SC1674 M, L, K	5A
TR02	0306340 ~ 2	2SC1674 M, L, K	5A
TR03	0306340 ~ 2	2SC1674 M, L, K	3A
TR04	0306340 ~ 2	2SC1674 M, L, K	3A
TR05	0306340 ~ 2	2SC1674 M, L, K	5A
TR06	0305951 ~ 3	2SC945 Q, P, K	4A
TR07	0300920, 1	2SA726 F, G	1A
	0300930, 1	2SA872 D, E	
TR08	0306010, 1	2SC1222(2) U, E	1A
	0306070, 1	2SC1313 F, G	
TR11	0300920, 1	2SA726 F, G	1B
	0300930, 1	2SA872 D, E	
TR12	0300920, 1	2SA726 F, G	1B
	0300930, 1	2SA872 D, E	
TR13	0306010, 1	2SC1222(2) U, E	1B
	0306070, 1	2SC1313 F, G	
TR14	0306010, 1	2SC1222(2) U, E	1B
	0306070, 1	2SC1313 F, G	
TR16	0305731 ~ 3	2SC711 E, F, G	3A
	0305951 ~ 3	2SC945 Q, P, K	
TR17	0305731 ~ 3	2SC711 E, F, G	3A
	0305951 ~ 3	2SC945 Q, P, K	
TR18	0305731 ~ 3	2SC711 E, F, G	3A
	0305951 ~ 3	2SC945 Q, P, K	
TR19	0300510 ~ 2	2SA733 P, Q, R	3A
TR20	0305731 ~ 3	2SC711 E, F, G	5A
	0305951 ~ 3	2SC945 Q, P, K	
TR21	0305731 ~ 3	2SC711 E, F, G	2B
	0306580 ~ 2	2SC1634(5), (6), (7)	
TR22	0305731 ~ 3	2SC711 E, F, G	2B
	0306580 ~ 2	2SC1634(5), (6), (7)	
TR23	0305731 ~ 3	2SC711 E, F, G	3B
	0306580 ~ 2	2SC1634(5), (6), (7)	
TR24	0305731 ~ 3	2SC711 E, F, G	3B
	0306580 ~ 2	2SC1634(5), (6), (7)	
TR26	0305731 ~ 3	2SC711 E, F, G	3A
	0305951 ~ 3	2SC945 Q, P, K	
TR27	0305731 ~ 3	2SC711 E, F, G	3A
	0305951 ~ 3	2SC945 Q, P, K	
TR28	0300510 ~ 2	2SA733 P, Q, R	2A
TR51	0306070 ~ 2	2SC1313 F, G, H	4B
TR52	0300510, 1	2SA733 P, Q	3B
TR53	0305731 ~ 3	2SC711 E, F, G	3B
	0305951 ~ 3	2SC945 Q, P, K	
TR54	0305731 ~ 3	2SC711 E, F, G	3B
	0305951 ~ 3	2SC945 Q, P, K	
●IC			
IC 01	0360590	TA-7302P	5A
IC 02	0360590	TA-7302P	5A
IC 03	0360590	TA-7302P	4A
IC 04	0360590	TA-7302P	3A
IC 05	0360270	μPC577H	2A
IC 06	0360540	μPC1163H	2A
IC 07	0360350	HA1137W	4A
IC 08	0360700	MPC-1173C	4B
IC 51	0360390	HA1197	
●Diodes			
D 01	0311160	1S2473D	1A
D 02	0311160	1S2473D	1A
D 12	0311160	1S2473D	4A
	0311180	1S1588	
D 15	0311160	1S2473D	3A
	0311180	1S1588	
D 18	0311160	1S2473D	3B
	0311180	1S1588	
D 21	0311160	1S2473D	3A
	0311180	1S1588	
D 51	0311160	1S2473D	5B
D 52	0310330, 1	1N60	4B
D 53	0311160	1S2473D	5B
D 54	0310330, 1	1N60	4B
D 55	0311160	1S2473D	3B
D 56	0311160	1S2473D	3B
D 57	0311160	1S2473D	3B
D 58	0311160	1S2473D	3B
D 59	0311160	1S2473D	3B
D 60	0311160	1S2473D	3B
D 99	0311160	1S2473D	
	0311180	1S1588	
●Varistor			
D 11	0340120	VD1212	4A
	0340150	MV-12	
D 16	0340170	MV-103	3A
D 22	0340120	VD1212	3A
	0340150	MV-12	
D 23	0340120	VD1212	3A
	0340150	MV-12	
●Zener Diodes			
ZD01	0316390	RD6.2E B	3A
	0316400	RD6.2E C	

Parts List (F-2920)

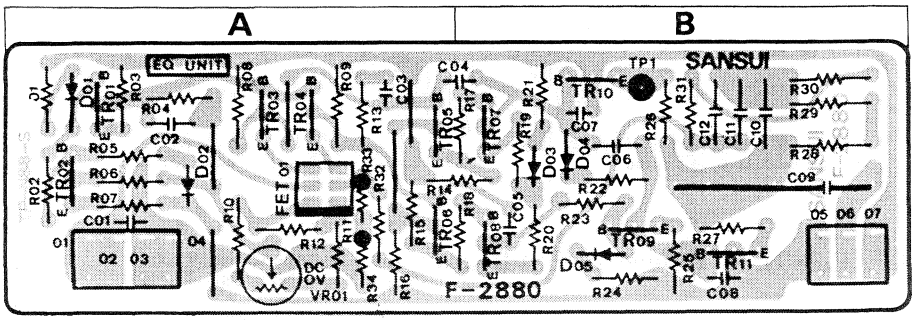
Parts No.	Stock No.	Description	Position
•Photo Coupler			
PC 01	0920080	P873-G35-911	1A
C 32	0669505	5pF 50V C.C.	3A
C 87	0573109	1.0μF 35V T.C.	2A
C 88	0573339	3.3μF 35V T.C.	2A
C 89	0573228	0.22μF 35V T.C.	2B
C 90	0629005	360pF 50V P.C.	2A
C 96	0620511	510pF 50V P.C.	2B
C 504	0669395	10pF 50V C.C.	5B
C 505	0620301	300pF 50V P.C.	5B
C 506	0669406	22pF 50V C.C.	5B
C 509	0669507	7pF 50V C.C.	5B
C 510	0669505	5pF 50V C.C.	5B
C 511	0669507	7pF 50V C.C.	5B
C 540	0679002	0.56pF 500V C.C.	5B
L 01	4290011	3.5μH Peaking Coil	5A
L 02	4290011	3.5μH Peaking Coil	4A
L 03	4290011	3.5μH Peaking Coil	4A
L 04	4290011	3.5μH Peaking Coil	2A
L 05	4290011	3.5μH Peaking Coil	1A
L 06	4900110	100μH Inductor	1A
	4900400	100μH Inductor	
L 11	4290011	3.5μH Peaking Coil	5A
L 12	4290300	18μH Inductor	4A
L 51	4290350	240μH Choke Coil	5B
L 52	4210370	RF Coil (AM)	5B
L 54	4220590	OSC Coil (AM)	5B
T 01	4236030	IF Coil (FM)	3A
T 02	4236010	IF Coil (FM)	2A
T 03	4236020	IF Coil (FM)	1A
T 04	4235930	IF Coil (FM)	4A
T 05	4236040	IF Coil (FM)	4A
T 52	4230630	IF Coil (AM)	5B
T 53	4230630	IF Coil (AM)	5B
T 54	4230630	IF Coil (AM)	5B
T 55	5230640	IF Coil (AM)	5B
T 56	4230620	IF Coil (AM)	4B
T 57	0910460	Filter Coil	3B
CF 01	0910420	Ceramic Filter	
CF 02	0910410	Ceramic Filter	
CF 04	0910420	Ceramic Filter	
CF 05	0910420	Ceramic Filter	
CF 51	0910370	Ceramic Filter	5B
LF 01	0910400	Low Pass Filter	1A
LF 02	0910360	Low Pass Filter	2B
VR01	1034250	4.7kΩ (B) Volume, V C.O.	2B
VR02	1034310	47kΩ (B) Volume, SEP	
VR11	1035130	10kΩ (B) Volume, FM signal	4A
VR12	1035190	100kΩ (B) Volume, muting	3A
VR13	1035110	4.7kΩ (B) Volume, noise	3A
VR51	1035150	22kΩ (B) Volume,	4B
VR52	1035070	1kΩ (B) Volume, AM signal	4B
S 01	1110240	Slide Switch, DE-EMPHASIS	1B
	0990020	Ceramic Filter	
	2410910	2P Pin Ass'y Type E	

4-3. Front-end Pack Circuit Board (Stock No. 7510711)

Note: As parts on the Front-end Pack would not be supplied individually, change whole the Front-end Pack Ass'y when repair.

4-4. F-2880 Equalizer Amp Circuit Board (Stock No. 7551301•G-22000) (Stock No. 7551311•G-33000)

Conductor Side



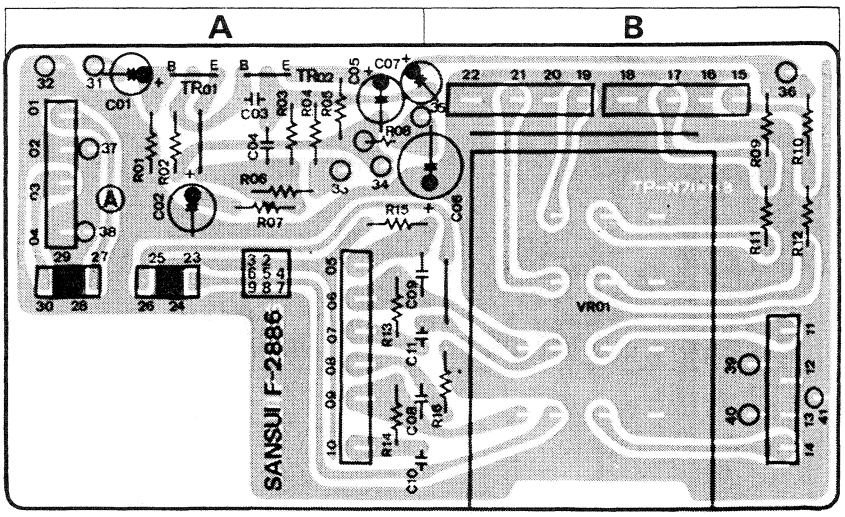
Parts List

Parts No.	Stock No.	Description	Position
•Transistors			
TR01	0300930, 1	2SA872 D, E	A
TR02	0306680, 1	2SC2071 B, V	A
TR03	0306550, 1	2SC1775 E, F	A
TR04	0306550, 1	2SC1775 E, F	A
TR05	0300930, 1	2SA872 D, E	A
TR06	0300930, 1	2SA872 D, E	A
TR07	0301030, 1	2SA939 B, V	B
TR08	0301030, 1	2SA939 B, V	B
TR09	0306680, 1	2SC2071 B, V	B
TR10	0306680, 1	2SC2071 B, V	B
TR11	0301030, 1	2SA939 B, V	B
•FET			
FT01	0370321	2SK131L	A
•Diodes			
D 01	0311160	1S2473D	A
D 02	0311160	1S2473D	A
D 03	0311160	1S2473D	B
D 04	0311160	1S2473D	B
D 05	0311160	1S2473D	B

Parts No.	Stock No.	Description	Position
C 01	0620101	100pF 50V P.C.	A
C 03	0620301	300pF 50V P.C.	A
C 09	0683009	4.7μF M.C.	B
C 10	0682029	0.056μF 100V M.C.	B
C 12	0682016	0.016μF 100V M.C.	B
C 902, 03	0583470	47μF 25V E.C.	
R 08	0231102	1.0kΩ 1/2W M.R.	A
R 09	0231102	1.0kΩ 1/2W M.R.	A
R 28	0231152	1.5kΩ 1/2W M.R.	B
R 29	0231563	56kΩ 1/2W M.R.	B
R 30	0231472	4.7kΩ 1/2W M.R.	B
R 34	0231101	100Ω 1/2W M.R.	A
VR01	1033570	100Ω Volume, DC 0V Adj.	A
	2420500	3P Connector Ass'y Type A	
	2420510	4P Connector Ass'y Type A	

4-5. F-2886 Volume & Mic Amp Circuit Board (Stock No. 7562281•G-22000) (Stock No. 7562341•G-33000)

Conductor Side



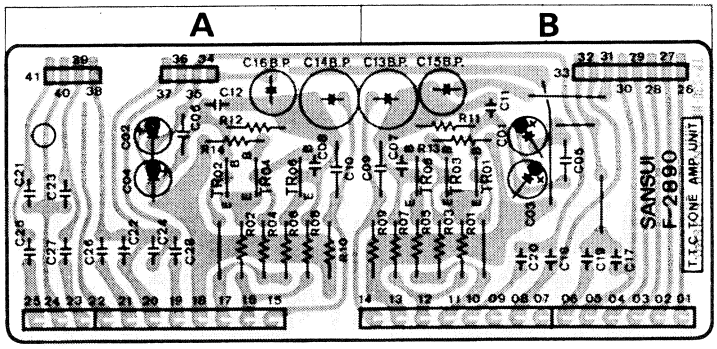
Parts List

Parts No.	Stock No.	Description	Position
•Transistors			
TR01	0300930, 1	2SA-872 D, E	A
TR02	0306550, 1	2SC-1775 E, F	A
C 04	0620511	510pF 50V P.C.	A
C 10	0620361	360pF 50V P.C.	A
C 11	0620361	360pF 50V P.C.	A

Parts No.	Stock No.	Description	Position
R 08	0200102	1kΩ 1/2W N.I.R.	A
VR01	1090330	150k x 2, 10k x 2 Volume	B

4-6. F-2890 Tone Amp Circuit Board (Stock No. 7562311●G-22000) (Stock No. 7562371●G-33000)

Conductor Side

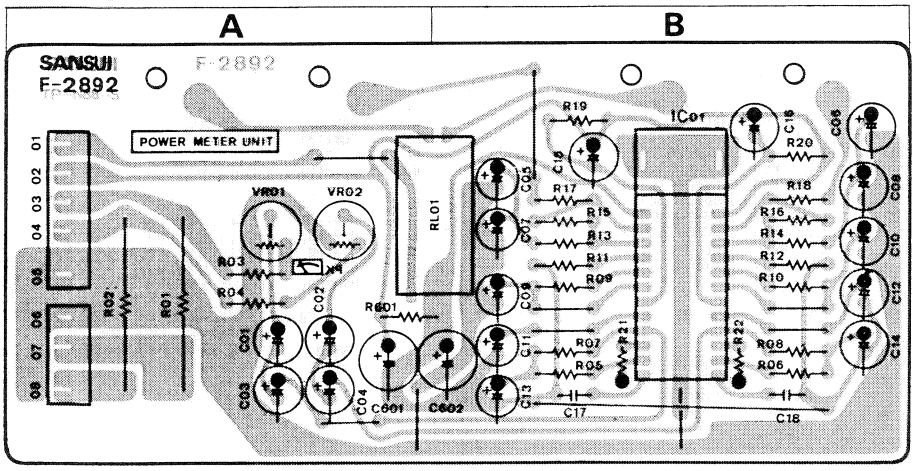


Parts List

Parts No.	Stock No.	Description	Position
●Transistors			
TR01, 02	0300930, 1	2SA-872 D, E	B, A
TR03, 04	0300930, 1	2SA-872 D, E	B, A
TR05, 06	0306680, 1	2SC-2071 B, V	B, A
C 13, 14	0534470	47μF 25V E.C.	B, A
C 15, 16	0534220	22μF 25V E.C.	B, A
C 17, 18	0620471	470pF 50V P.C.	B
C 19, 20	0620471	470pF 50V P.C.	B
R 07, 08	0201332	3.3kΩ 1W N.I.R.	B, A
	2410760	3P Pin Ass'y Type C	
	2410780	6P Pin Ass'y Type C	
	2410790	8P Pin Ass'y Type C	

4-7. F-2892 Peak Meter Circuit Board (Stock No. 7596361●G-22000) (Stock No. 7596501●G-33000)

Conductor Side

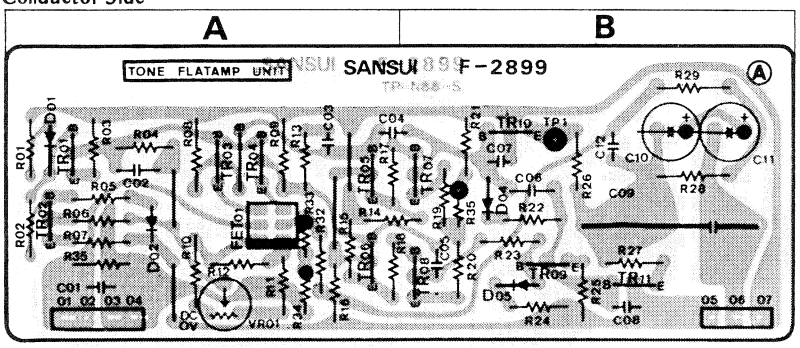


Parts List

Parts No.	Stock No.	Description	Position
●IC			
IC 01	0360690	CX-067	B
R 01, 02	0135221	220Ω 5W Ce.R.	A
RL01	1150430	Relay	A, B
VR01, 02	1035410	47kΩ (B) Volume, meter	A
	2410670	3P Pin Ass'y Type F	
	2410690	5P Pin Ass'y Type F	

4-8. F-2899 Flat Amp Circuit Board (Stock No. 7562321●G-22000) (Stock No. 7562381●G-33000)

Conductor Side



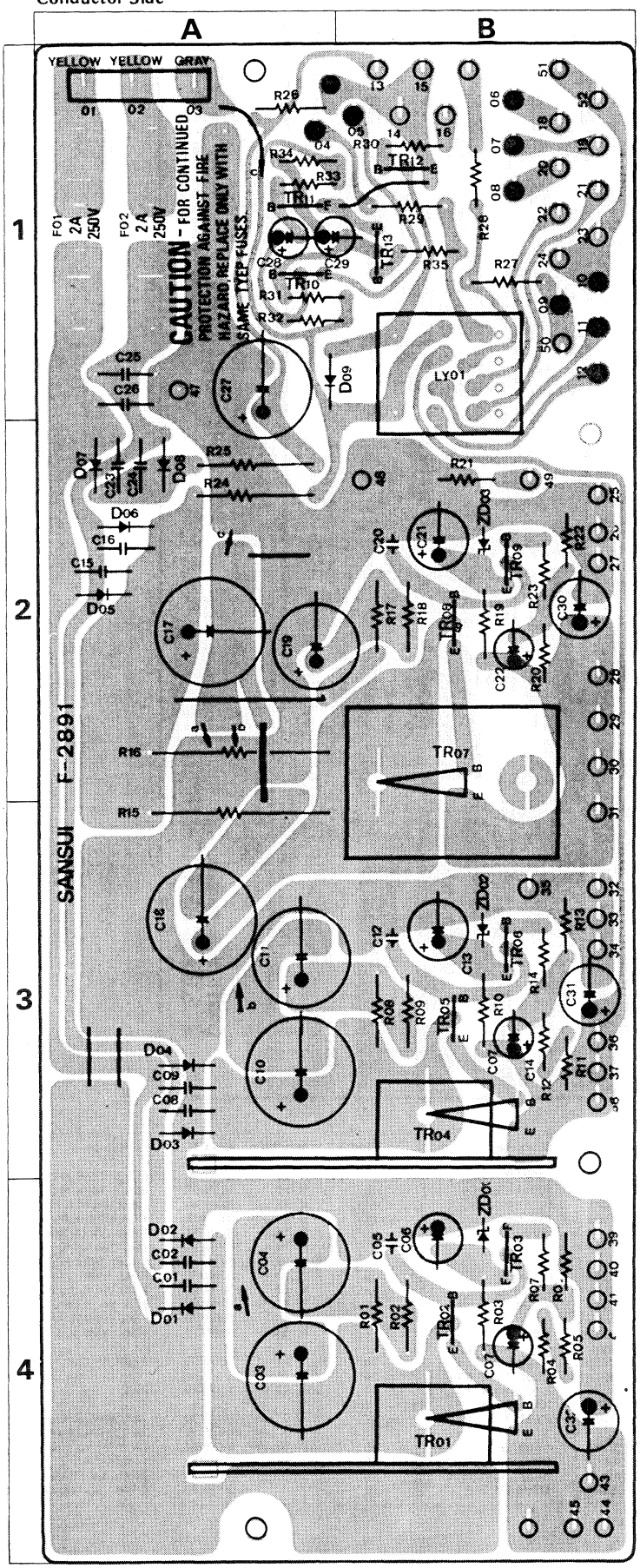
Parts List

Parts No.	Stock No.	Description	Position
●Transistors			
TR02	0306680, 1	2SC2071 B, V	1A
TR03	0306550, 1	2SC1775 E, F	1A
TR04	0306550, 1	2SC1775 E, F	1A
TR05	0300930, 1	2SA872 D, E	1A
TR06	0300930, 1	2SA872 D, E	1A
TR07	0301030, 1	2SA939 B, V	1B
TR08	0301030, 1	2SA939 B, V	1B
TR09	0306680, 1	2SC2071 B, V	1B
TR10	0306680, 1	2SC2071 B, V	1B
TR11	0301030, 1	2SA939 B, V	1B
●FET			
FT01	0370312	2SK129 M	A
●Diodes			
D 02	0311160	1S2473D	A
D 04	0311160	1S2473D	B
D 05	0311160	1S2473D	B
C 10	0584101	100μF 35V E.C.	B
C 11	0584101	100μF 35V E.C.	B
R 08	0231222	2.2kΩ 1/2W M.R.	A
R 09	0231222	2.2kΩ 1/2W M.R.	A
R 28	0231682	6.8kΩ 1/2W M.R.	B
R 33	0231561	560Ω 1/2W M.R.	A
VR01	1033590	220Ω (B) Volume, DC 0V Adj	A
	2410760	3P Pin Ass'y Type C	
	2410770	4P Pin Ass'y Type C	

4-9. F-2891 Power Supply Circuit Board

(Stock No. 7502831●G-22000)
(Stock No. 7502901●G-33000)

Conductor Side

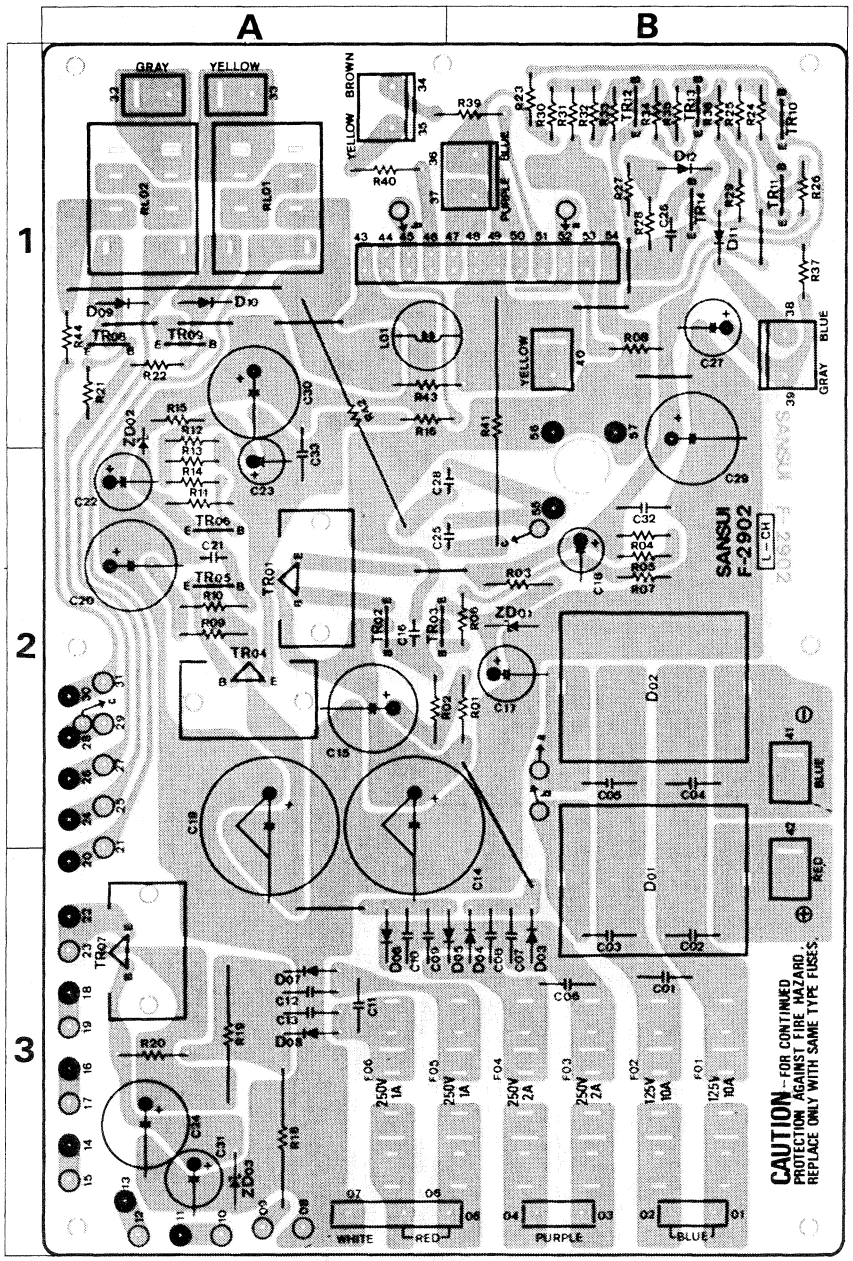


Parts List

Parts No.	Stock No.	Description	Position
●Transistors			
TR01	0303420, 1	2SB508AL D, E	4B
TR02	0300930, 1	2SA872 D, E	4B
TR03	0300930, 1	2SA872 D, E	4B
TR04	0308411, 2	2SD314 D, E	3B
TR05	0306550, 1	2SC1775 E, F	3B
TR06	0306550, 1	2SC1775 E, F	3B
TR07	0308551, 2	2SD315 D, E	2B
TR08	0306550, 1	2SC1775 E, F	2B
TR09	0306550, 1	2SC1775 E, F	2B
TR10, 11	0305953	2SC945 K	1A
TR12	0305953	2SC945 K	1B
TR13	0305952	2SC945 P	1B
●Diodes			
D 01, 02	0310340	10D1 (1S2226)	4A
D 03, 04	0310340	10D1 (1S2226)	3A
D 05, 06	0310340	10D1 (1S2226)	2A
D 07, 08	0310340	10D1 (1S2226)	2A
D 09	0310340	10D1 (1S2226)	1A
●Zener Diodes			
ZD01	0316400	RD6.2E C	4B
ZD02	0316400	RD6.2E C	3B
ZD03	0316400	RD6.2E C	2B
C 01, 02	0655103	10000pF 500V C.C.	4A
C 05	0620222	2200pF 50V P.C.	4B
C 08, 09	0655103	10000pF 500V C.C.	3A
C 12	0620222	2200pF 50V P.C.	3B
C 15, 16	0655103	10000pF 500V C.C.	2A
C 20	0620222	2200pF 50V P.C.	2B
C 23, 24	0655103	10000pF 500V C.C.	2A
C 25, 26	0655103	10000pF 500V C.C.	1A
C 31	0584101	100μF 35V E.C.	1A
C 32	0584101	100μF 35V E.C.	1A
R 01	0210332	3.3kΩ 1/2W N.I.R.	4B
R 02	0210332	3.3kΩ 1/2W N.I.R.	4B
R 03	0310332	3.3kΩ 1/2W N.I.R.	4B
R 08	0210332	3.3kΩ 1/2W N.I.R.	3B
R 09	0210332	3.3kΩ 1/2W N.I.R.	3B
R 10	0210332	3.3kΩ 1/2W N.I.R.	3B
R 15	0135151	150Ω 5W Ce.R.	3A
R 16	0135151	150Ω 5W Ce.R.	2A
R 17	0210272	2.7kΩ 1/2W N.I.R.	2B
R 18	0210272	2.7kΩ 1/2W N.I.R.	2B
R 19	0210122	1.2kΩ 1/2W N.I.R.	2B
R 24	0212471	470Ω 2W N.I.R.	2A
R 25	0212151	150Ω 2W N.I.R.	2A
R 26	0210103	10kΩ 1/2W N.I.R	1A
R 27	0192331	330Ω 1/2W F.R.	1B
R 29	0211152	1.5kΩ 1W N.I.R.	1B
RL01	1150400	Relay	
F 01, 02	0432240	2A 250V AC Fuse	1A
	2310220	Fuse Holder	

4-10. F-2902 Power Supply L-CH Circuit Board (Stock No. 7502861●G-22000) (Stock No. 7502881●G-33000)

Conductor Side

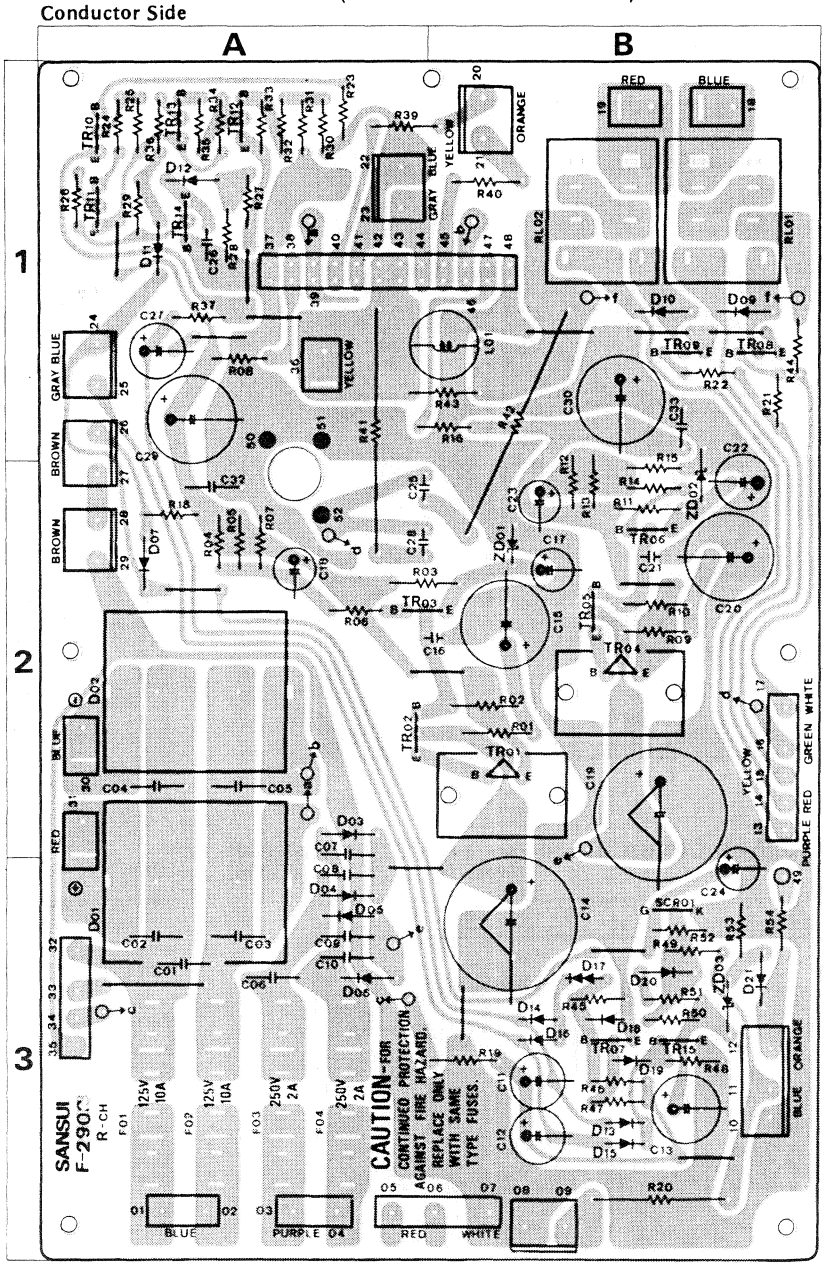


Parts List

Parts No.	Stock No.	Description	Position
●Transistors			
TR01	0306701, 2	2SC2168 O, Y	2A
TR02	0306680, 1	2SC2071 B, V	2A
TR03	0306680, 1	2SC2071 B, V	2A
TR04	0301051, 2	2SA958 O, Y	2A
TR05	0301030, 1	2SA939 B, V	2A
TR06	0301030, 1	2SA939 B, V	2A
TR07	0308391, 2	2SD313 D, E	3A
TR08	0305953	2SC945 K	1A
TR09	0305953	2SC945 K	1A
TR10	0306680, 1	2SC2071 B, V	1B
TR11	0301030, 1	2SA939 B, V	1B
TR12	0306680, 1	2SC2071 B, V	1B
TR13	0301030, 1	2SA939 B, V	1B
TR14	0306680, 1	2SC2071 B, V	1B
●Diodes			
D 01	0311670	SS-7	3B
D 02	0311680	SS-7R	2B
D 03	0310350	10D2 (1S2227)	3B
D 04	0310350	10D2 (1S2227)	3B
D 05	0310350	10D2 (1S2227)	3B
D 06	0310350	10D2 (1S2227)	3A
D 07	0310350	10D2 (1S2227)	3A
D 08	0310350	10D2 (1S2227)	3A
D 09	0310340	10D1 (1S2226)	1A
D 10	0310340	10D1 (1S2226)	1A
D 11	0311160	1S2473D	1B
D 12	0311160	1S2473D	1B
●Zener Diodes			
ZD01	0316520	RD24E C	2B
ZD02	0316520	RD24E C	1A
ZD03	0316510	RD24E B	3A
C 01 ~ 13	0655103	10000pF 500V C.C.	
C 14	0549601	470μF 120V E.C.	2A
C 16	0620222	2200pF 50V P.C.	2A
C 19	0549601	470μF 120V E.C.	2A
C 21	0620222	2200pF 50V P.C.	2A
C 29	0588101	100μF 100V E.C.	1B, 2B
C 30	0588101	100μF 100V E.C.	1A
R 01	0210472	4.7kΩ 1/2W N.I.R.	2B
R 02	0210472	4.7kΩ 1/2W N.I.R.	2A
R 03	0210103	10kΩ 1/2W N.I.R.	2B
R 08	0192470	47Ω 1/2W F.R.	1B
R 09	0210472	4.7kΩ 1/2W N.I.R.	2A
R 10	0210472	4.7kΩ 1/2W N.I.R.	2A
R 11	0210103	10kΩ 1/2W N.I.R.	2A
R 16	0192470	47Ω 1/2W F.R.	1A
R 18	0133151	150Ω 3W Ce.R.	3A
R 19	0213220	22Ω 3W N.I.R.	3A
R 20	0210472	4.7kΩ 1/2W N.I.R.	3A
R 39	0210479	4.7Ω 1/2W N.I.R.	1B
R 40	0210479	4.7Ω 1/2W N.I.R.	1A
R 41, 42	0205100	10Ω 5W N.I.R.	1B, 1A
R 43	0202109	1.0Ω 2W N.I.R.	1A
R 44	0191479	4.7Ω 1/4W F.R.	1A
L 01	4210290	1.5μH RF Coil	1A
RL01, 02	1150410	Relay	1A
F 01, 02	0431320	10A 250V AC Fuse	3B
F 03, 04	0432240	2A 250V AC Fuse	3B
F 05, 06	0432220	1A 250V AC Fuse	3B, 3A
	2310220	Fuse Holder	
	2410910	2P Pin Ass'y Type E	
	2420570	6P Pin Connector Ass'y Type A	

4-11. F-2903 Power Supply R-CH Circuit Board (Stock No. 7502871●G-22000) (Stock No. 7502891●G-33000)

Conductor Side



Parts List

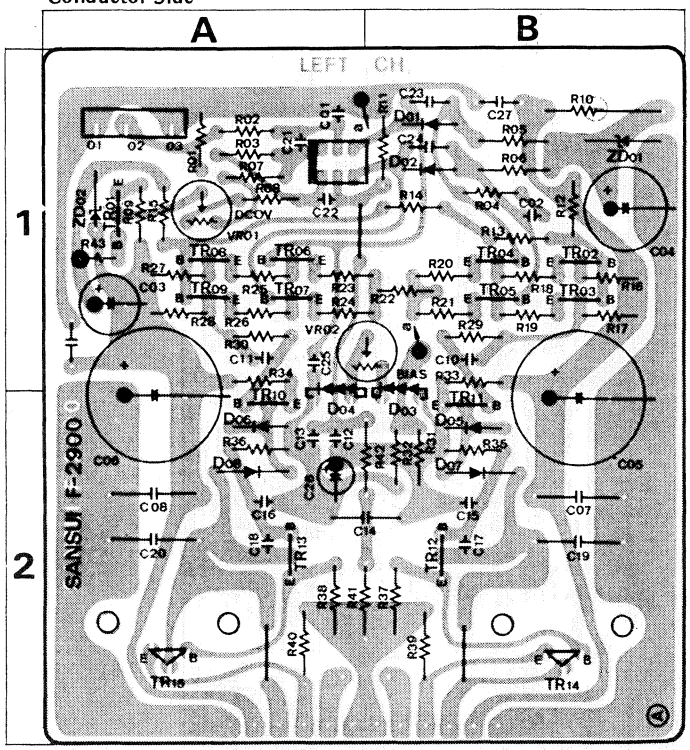
Parts No.	Stock No.	Description	Position
●Transistors			
TR01	0306701, 2	2SC2168 O, Y	2B
TR02	0306680, 1	2SC2071 B, V	2A
TR03	0306680, 1	2SC2071 B, V	2A
TR04	0301051, 2	2SA958 O, Y	2B
TR05	0301030, 1	2SA939 B, V	2B
TR06	0301030, 1	2SA939 B, V	2B
TR07	0305951, 2	2SC945 Q, P	3B
TR08	0305953	2SC945 K	1B
TR09	0305953	2SC945 K	1B
TR10	0306680, 1	2SC2071 B, V	1A
TR11	0301030, 1	2SA939 B, V	1A
TR12	0306680, 1	2SC2071 B, V	1A
TR13	0301030, 1	2SA939 B, V	1A
TR14	0306680, 1	2SC2071 B, V	1A
TR15	0305951, 2	2SC945 Q, P	3B
●Diodes			
D 01	0311670	SS-7	3A
D 02	0311680	SS-7R	2A
D 03	0310350	10D2 (1S2227)	2A
D 04	0310350	10D2 (1S2227)	3A
D 05	0310350	10D2 (1S2227)	3A
D 06	0310350	10D2 (1S2227)	3A
D 07	0311160	1S2473D	2A
D 09	0310340	10D1 (1S2226)	1B
D 10	0310340	10D1 (1S2226)	1B
D 11	0311160	1S2473D	1A

Parts No.	Stock No.	Description	Position
D 12	0311160	1S2473D	1A
D 13	0311160	1S2473D	3B
D 14	0311160	1S2473D	3B
D 15	0311160	1S2473D	3B
D 16	0311160	1S2473D	3B
D 18	0311160	1S2473D	3B
D 19	0311160	1S2473D	3B
D 20	0310340	10D1 (1S2226)	3B
D 21	0310340	10D1 (1S2226)	3B
●Varistor			
D 17	0340150	MV-12	3B
●Zener Diodes			
ZD01	0316520	RD24E C	2B
ZD02	0316520	RD24E C	2B
ZD03	0316400	RD6.2E C	3B
●SCR			
SR01	0350020	2SF656	3B
C 01 ~ 10	0655103	10000pF 500V C.C.	2A, 3A
C 14	0549601	470μF 120V E.C.	3B
C 16	0620222	2200pF 50V P.C.	2B
C 19	0549601	470μF 120V E.C.	2B
C 21	0620222	2200pF 50V P.C.	2B
C 29	0588101	100μF 100V E.C.	1A
C 30	0588101	100μF 100V E.C.	1B

Parts No.	Stock No.	Description	Position
R 01	0210472	4.7kΩ 1/2W N.I.R.	2B
R 02	0210472	4.7kΩ 1/2W N.I.R.	2B
R 03	0210103	10kΩ 1/2W N.I.R.	2A
R 08	0192470	47Ω 1/2W F.R.	1A
R 09	0210472	4.7kΩ 1/2W N.I.R.	2B
R 10	0210472	4.7kΩ 1/2W N.I.R.	2B
R 11	0210103	10kΩ 1/2W N.I.R.	2B
R 16	0192470	47Ω 1/2W F.R.	1B
R 19	0211182	1.8kΩ 1W N.I.R.	3B
R 20	0185471	470Ω 5W Ce.R.	3B
R 39	0210479	4.7Ω 1/2W N.I.R.	1A
R 40	0210479	4.7Ω 1/2W N.I.R.	1B
R 41, 42	0205100	10Ω 5W N.I.R.	1A, 1B
R 43	0202109	1.0Ω 2W N.I.R.	1B
R 44	0191479	4.7Ω 1/4W F.R.	1A
L 01	4210290	1.5μH RF Coil	1B
RL01, 02	1150410	Relay	1B
F 01, 02	0431320	10A 250V AC Fuse	3A
F 03, 04	0432240	2A 250V AC Fuse	3A
	2310220	Fuse Holder	
	2410590	4P Pin Ass'y Type D	
	2410910	2P Pin Ass'y Type E	
	2420570	6P Connector Ass'y Type A	

4-12. F-2900 Driver Amp L-CH Circuit Board (Stock No. 7571941●G-22000) (Stock No. 7571961●G-33000)

Conductor Side

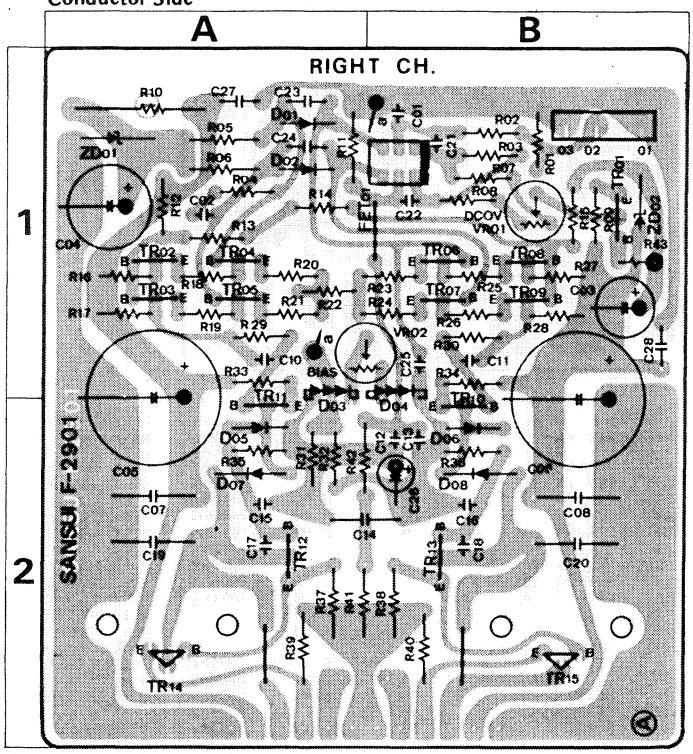


Parts List (F-2900)

Parts No.	Stock No.	Description	Position
●Transistors			
TR01	0306680, 1	2SC2071 B, V	1A
TR02 ~ 05	0306550, 1	2SC1775 E, F	1B
TR06 ~ 09	0300930, 1	2SA872 D, E	1A
TR10	0306680, 1	2SC2071 B, V	1A
TR11	0301030, 1	2SA939 B, V	1B
TR12	0306680, 1	2SC2071 B, V	2B
TR13	0301030, 1	2SA939 B, V	2A
TR14	0306720, 1	2SC2238 O, Y	2B
TR15	0301070, 1	2SA968 O, Y	2A
●FET			
FT01	0370312	2SK129 M	
●Varistors			
D 01, 02	0340170	MV-103	1A
D 03, 04	0340161, 2	STV-3H Y, G	1B, 1A
D 07, 08	0340170	MV-103	
●Diode			
D 05, 06	0310340	10D1 (1S2226)	2B, 2A
●Zener Diodes			
ZD01	0316530	RD27E B	1B
ZD02	0316290	RD12E B	1A
C 01	0620101	100pF 50V P.C.	1A
C 02	0620681	680pF 50V P.C.	1B
C 05, 06	0588221	220μF 100V E.C.	1B, 1A
C 07, 08	0681001	0.47μF 250V M.C.	2B, 2A
C 10	0620102	1000pF 50V P.C.	1B
C 11	0620102	1000pF 50V P.C.	1A
C 15, 16	0620102	1000pF 50V P.C.	2B, 2A
C 17, 18	0622470	47pF 125V P.C.	2B, 2A
C 19, 20	0681001	0.47μF 250V M.C.	2B, 2A
C 27, 28	0680037	0.033μF 100V M.C.	1B, 1A
R 05	0231392	3.9kΩ 1/2W M.R.	1B
R 06	0231392	3.9kΩ 1/2W M.R.	1B
R 10	0212392	3.9kΩ 2W N.I.R.	1B
R 11	0231391	390Ω 1/2W M.R.	1B
R 35	0210391	390Ω 1/2W N.I.R.	2B
R 36	0210391	390Ω 1/2W N.I.R.	2A
R 37	0210561	560Ω 1/2W N.I.R.	2B
R 38	0210561	560Ω 1/2W N.I.R.	2A
R 39	0210470	47Ω 1/2W N.I.R.	2B
R 40	0210470	47Ω 1/2W N.I.R.	2A
R 41	0231103	10kΩ 1/2W M.R.	2A, B
R 42	0231471	470Ω 1/2W M.R.	2A, B
VR01	1034150	100Ω (B) Volume, DC 0V Adj.	1A
VR02	1034170	220Ω (B) Volume, bias current Adj.	1A
	2410780	6P Pin Ass'y Type C	
	2410920	3P Pin Ass'y Type E	

4-13. F-2901 Driver Amp R-ch Circuit Board (Stock No. 7571951●G-22000) (Stock No. 7571971●G-33000)

Conductor Side



Parts List (F-2901)

Parts No.	Stock No.	Description	Position
●Transistors			
TR01	0306680, 1	2SC2071 B, V	1B
TR02 ~ 05	0306550, 1	2SC1775 E, F	1A
TR06 ~ 09	0300930, 1	2SA872 D, E	1B
TR10	0306680, 1	2SC2071 B, V	2B
TR11	0301030, 1	2SA939 B, V	2A
TR12	0306680, 1	2SC2071 B, V	2A
TR13	0301030, 1	2SA939 B, V	2B
TR14	0306720, 1	2SC2238 O, Y	2A
TR15	0301070, 1	2SA968 B, C, Y	2B

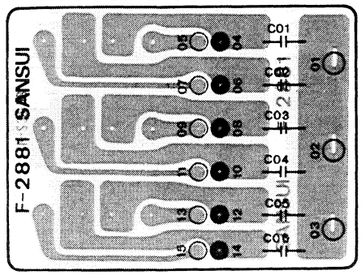
Parts List (F-2901)

Parts No.	Stock No.	Description	Position
●FET			
FT01	0370312	2SK129 M	1B
●Varistors			
D 01, 02	0340170	MV-103	1A
D 03, 04	0340161, 2	STV-3H Y, G	1A, 1B
D 07, 08	0340170	MV-103	
●Diode			
D 05, 06	0310340	10D1 (1S2226)	2A, 2B
●Zener Diodes			
ZD01	0316530	RD27E B	1A
ZD02	0316290	RD12E B	1B
C 01	0620101	100pF 50V P.C.	1B
C 02	0260681	680pF 50V P.C.	1A
C 05, 06	0588221	220μF 100V E.C.	2A, 2B
C 07, 08	0681001	0.47μF 250V M.C.	2A, 2B
C 10	0620102	1000pF 50V P.C.	1A
C 11	0620102	1000pF 50V P.C.	1B
C 15, 16	0620102	1000pF 50V P.C.	2A, 2B
C 17, 18	0622470	47pF 125V P.C.	2A, 2B
C 19, 20	0681001	0.47μF 250V M.C.	2A, 2B
C 27, 28	0680037	0.033μF 100V M.C.	1A, 1B
R 05	0231392	3.9kΩ 1/2W M.R.	1A
R 06	0231392	3.9kΩ 1/2W M.R.	1A
R 10	0212392	3.9kΩ 2W N.I.R.	1A
R 11	0231391	390Ω 1/2W M.R.	1A
R 35	0210391	390Ω 1/2W N.I.R.	2A
R 36	0210391	390Ω 1/2W N.I.R.	2B
R 37	0210561	560Ω 1/2W N.I.R.	2A
R 38	0210561	560Ω 1/2W N.I.R.	2B
R 39	0210470	47Ω 1/2W N.I.R.	2A
R 40	0210470	47Ω 1/2W N.I.R.	2B
R 41	0231103	10kΩ 1/2W M.R.	2A
R 42	0231471	470Ω 1/2W M.R.	2A, 2B
VR01	1034150	100Ω (B) Volume, DC 0V Adj.	1B
VR02	1034170	220Ω (B) Volume, bias current Adj.	1B
	2410780	6P Pin Ass'y Type C	
	2410920	3P Pin Ass'y Type E	

• The circuit boards, F-2881, F-2882, F-2883, F-2884, F-2885, F-2887, F-2893, F-2894, F-2898, F-2895, F-2896, F-2897, F-2904, F-2905, F-2889, F-2906, & F-2907 are not supplied as the assembled, the individual parts on the circuit boards, however are provided for orders.

4-14. F-2881 Input Circuit Board

Conductor Side

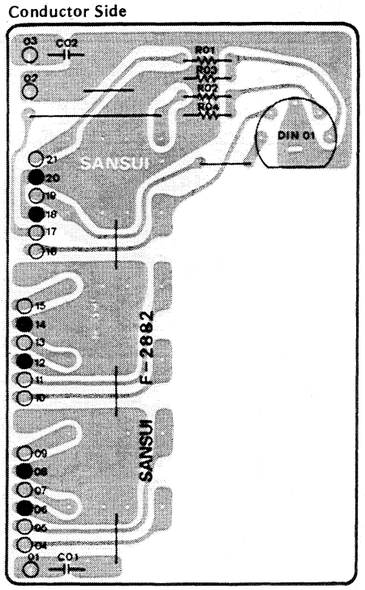


Parts List

Parts No.	Stock No.	Description
	2200530	6P Input Terminal

4-15. F-2882 Tape Monitor Circuit Board

Conductor Side

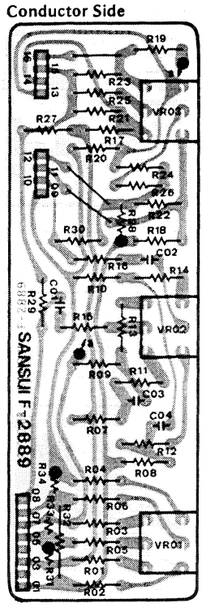


Parts List

Parts No.	Stock No.	Description
J 01	2090030	5P DIN Socket
	2200490	12P Input Terminal

4-16. F-2889 Bax Circuit Board

Conductor Side

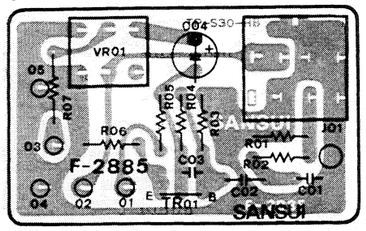


Parts List

Parts No.	Stock No.	Description
VR01	1015400	100kΩ x 2 (B) Volume, treble
VR02	1015400	100kΩ x 2 (B) Volume, midrange
VR03	1015400	100kΩ x 2 (B) Volume, bass

4-17. F-2885 Mic First Amp Circuit Board

Conductor Side

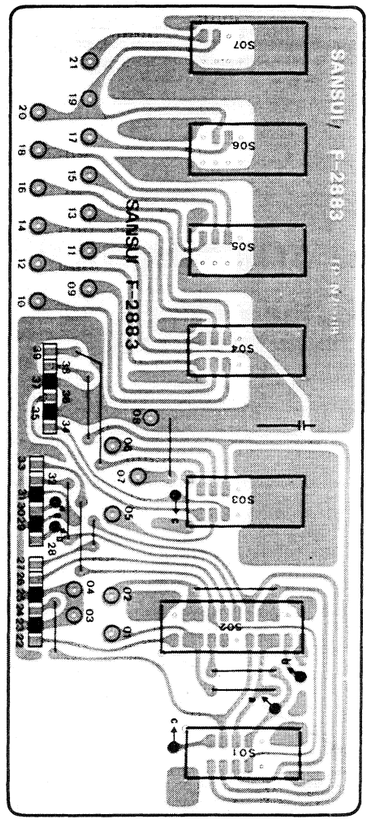


Parts List

Parts No.	Stock No.	Description
•Transistor		
TR01	0300930, 1	2SA872 D, E
VR01	1090340	20kΩ (A) x 2 Volume, Mic level
J 01	2430400	Mic Jack

4-18. F-2883 Tape Monitor SW Circuit Board

Conductor Side

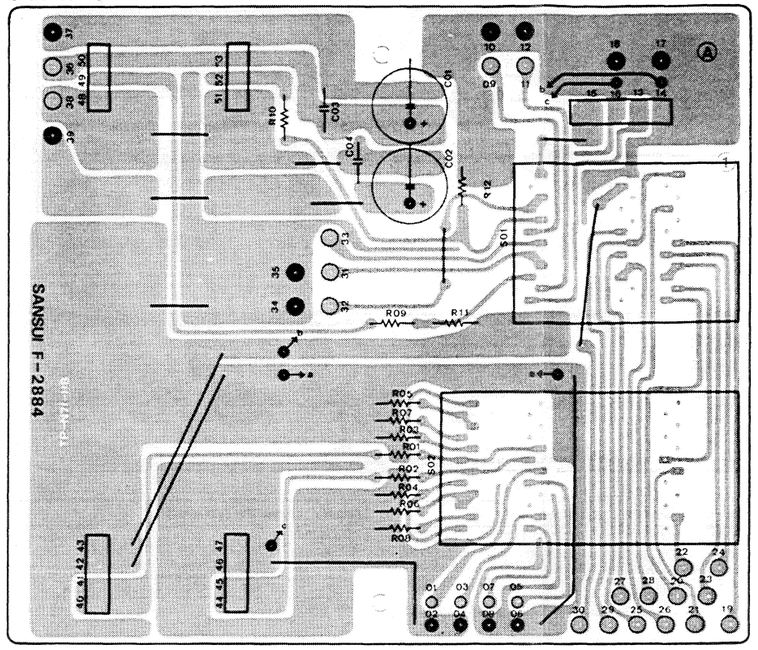


Parts List

Parts No.	Stock No.	Description
S 01	1171860	Lever Switch, tape monitor
S 02	1171880	Lever Switch, tape copy
S 03	1171780	Lever Switch, 4ch/NR adaptor
S 04	1171780	Lever Switch, IF Band AM
S 05	1171780	Lever Switch, IF Band FM
S 06	1171780	Lever Switch, FM Auto Noise Filter
S 07	1171780	Lever Switch, FM Muting

4-19. F-2884 Mother Board for Equalizer Circuit Board

Conductor Side

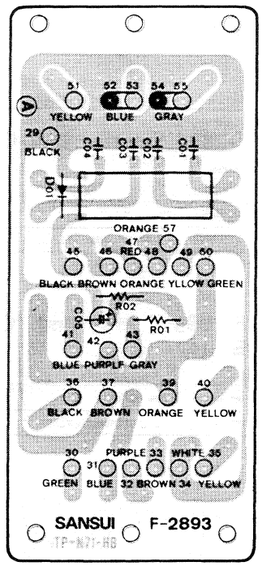


Parts List

Parts No.	Stock No.	Description
C 01, 02	0584471	470μF 35V E.C.
S 01	1103620	Rotary Switch, selector
S 02	1103610	Rotary Switch, impedance selector
	2410590	4P Pin Ass'y Type D
	2410710	3P Pin Ass'y Type A
	2410720	4P Pin Ass'y Type A

4-20. F-2893 Connection Circuit Board

Conductor Side

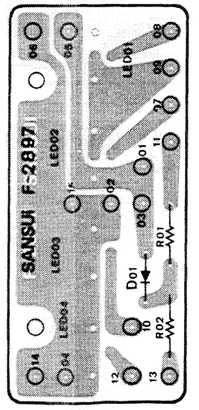


Parts List

Parts No.	Stock No.	Description
•Diode		
D 01	0310340	10D1 (1S2226)
RL01	1150470	Relay

4-21. F-2897 Power, Protector, SP Ind. Circuit Board

Conductor Side

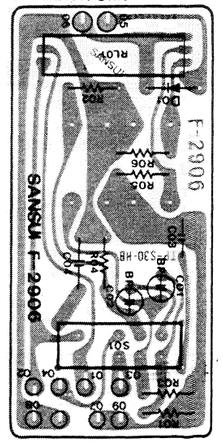


Parts List

Parts No.	Stock No.	Description
•Diode		
D 01	0310340	10D1 (1S2226)
LD01	0319050	SG2-13C (Green) LED
LD02 ~ 04	0319060	SG2-12C (Red) LED
R 01, 02	0201391	390Ω 1W N.I.R.

4-22. F-2906 Output Circuit Board

Conductor Side

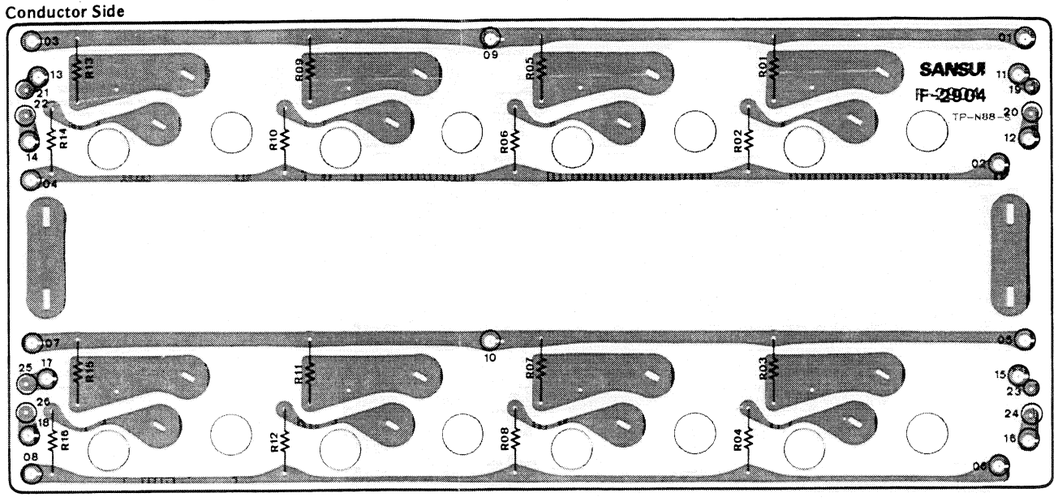


Parts List

Parts No.	Stock No.	Description
•Diode		
D 01	0310340	10D1 (1S2226)
RL01	1150430	Relay
S 01	1110390	Slide Switch, pre-power
	2200500	4P Input Terminal

4-23. F-2904 Final Stage Circuit Board

Conductor Side

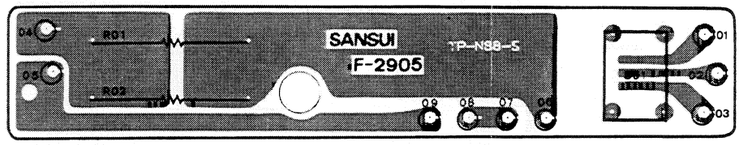


Parts List

Parts No.	Stock No.	Description
PR01	0320120	Posistor
R 01	0211101	100Ω 1W N.I.R.
R 02	0211479	4.7Ω 1W N.I.R.
R 03	0211101	100Ω 1W N.I.R.
R 04	0211479	4.7Ω 1W N.I.R.
R 05	0211101	100Ω 1W N.I.R.
R 06	0211479	4.7Ω 1W N.I.R.
R 07	0211101	100Ω 1W N.I.R.
R 08	0211479	4.7Ω 1W N.I.R.
R 09	0211101	100Ω 1W N.I.R.
R 10	0211479	4.7Ω 1W N.I.R.
<G-33000 Only>		
R 13	0211101	100Ω 1W N.I.R.
R 14	0211479	4.7Ω 1W N.I.R.
R 15	0211101	100Ω 1W N.I.R.
R 16	0211479	4.7Ω 1W N.I.R.

4-24. F-2905 Fan Driving Circuit Board

Conductor Side

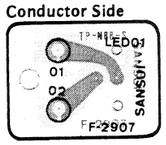


Parts List

Parts No.	Stock No.	Description
R 01	0185471	470Ω 5W Ce.R.
R 02	0185471	470Ω 5W Ce.R.
S 01	1171970	Lever Switch, remote

4-25. F-2907 Power Ind. Circuit Board

Conductor Side



Parts List

Parts No.	Stock No.	Description
LD701	0319050	SG2-13C (Green) LED

4-26. F-2898 Lamp & Connect Circuit Board

Parts List

Parts No.	Stock No.	Description
•Diode		
D 01	0310340	10D1 (1S2226)
R 01	0201391	390Ω 1W N.I.R.
	2410700	6P Pin Ass'y Type F
	2410910	2P Pin Ass'y Type E

4-27. F-2887 Balance VR Circuit Board

Parts List

Parts No.	Stock No.	Description
	1015340	250kΩ x 2 (MN) Volume, balance

4-28. F-2896 Fuse Circuit Board

Parts List

Parts No.	Stock No.	Description
	0432260	3A 250V AC Fuse
	2310220	Fuse Holder

4-29. F-2894 Selector Ind. Circuit Board

Parts List

Parts No.	Stock No.	Description
LD01 ~05	0319060	SG2-12C (red) LED

4-30. F-2895 Stereo Ind. Circuit Board

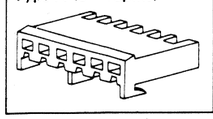
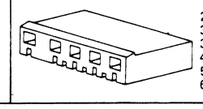
Parts List

Parts No.	Stock No.	Description
	0319060	SG2-12C (red) LED

- **Abbreviations**

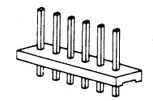
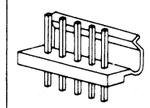
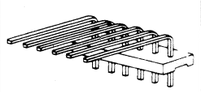
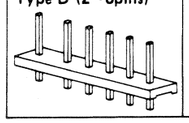
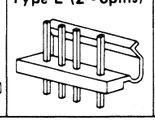
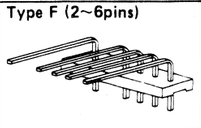
C.R.	: Carbon Resistor	E.C.	: Electrolytic Capacitor
S.R.	: Solid Resistor	BP.E.C.	: Bi-Polar Electrolytic Capacitor
Ce.R.	: Cement Resistor	C.C.	: Ceramic Capacitor
M.R.	: Metal Film Resistor	Mi.C.	: Mica Capacitor
F.R.	: Fusing Resistor	O.C.	: Oil Capacitor
N.I.R.	: Non-Inflammable Resistor	P.C.	: Polystyrene Capacitor
M.C.	: Mylar Capacitor	E.C.	: Tantalum Capacitor

Conectors

Type A (3~10pins)	Type B (2~6pins)		Stock No.
		2Pins	2420450
		3Pins	2420460
		3Pins(RED)	2420650
		4Pins	2420470
		5Pins	2420480
		6Pins	2420490

Note: Since stock number of famale connectors (type B) with wires are not shown in each parts list of Complete circuit board, please refer to the above parts list when ordering the connector.

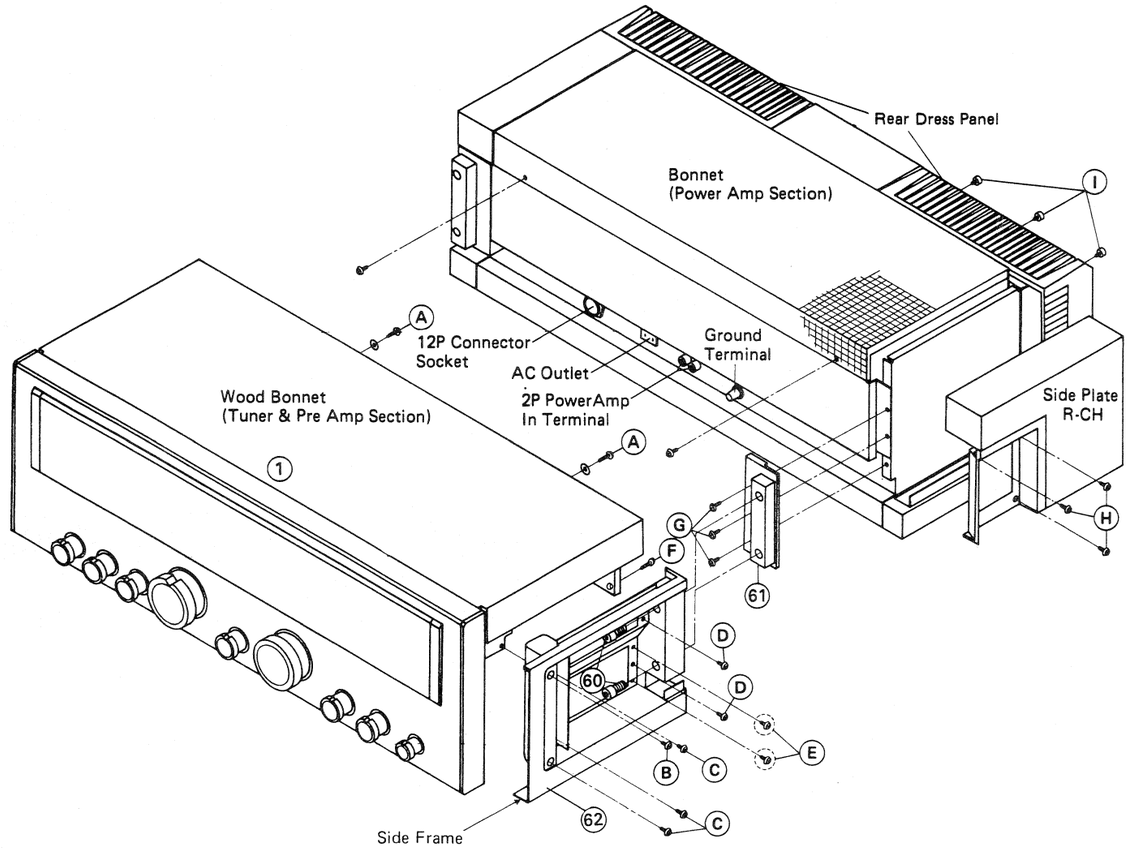
Pin Ass'y

Type A (3~10pins)	Type B (3~10pins)	Type C (3~10pins)
		
Type D (2~6pins)	**Type E (2~6pins)**	**Type F (2~6pins)**
		

5. OTHER PARTS

5-1. Exploded View

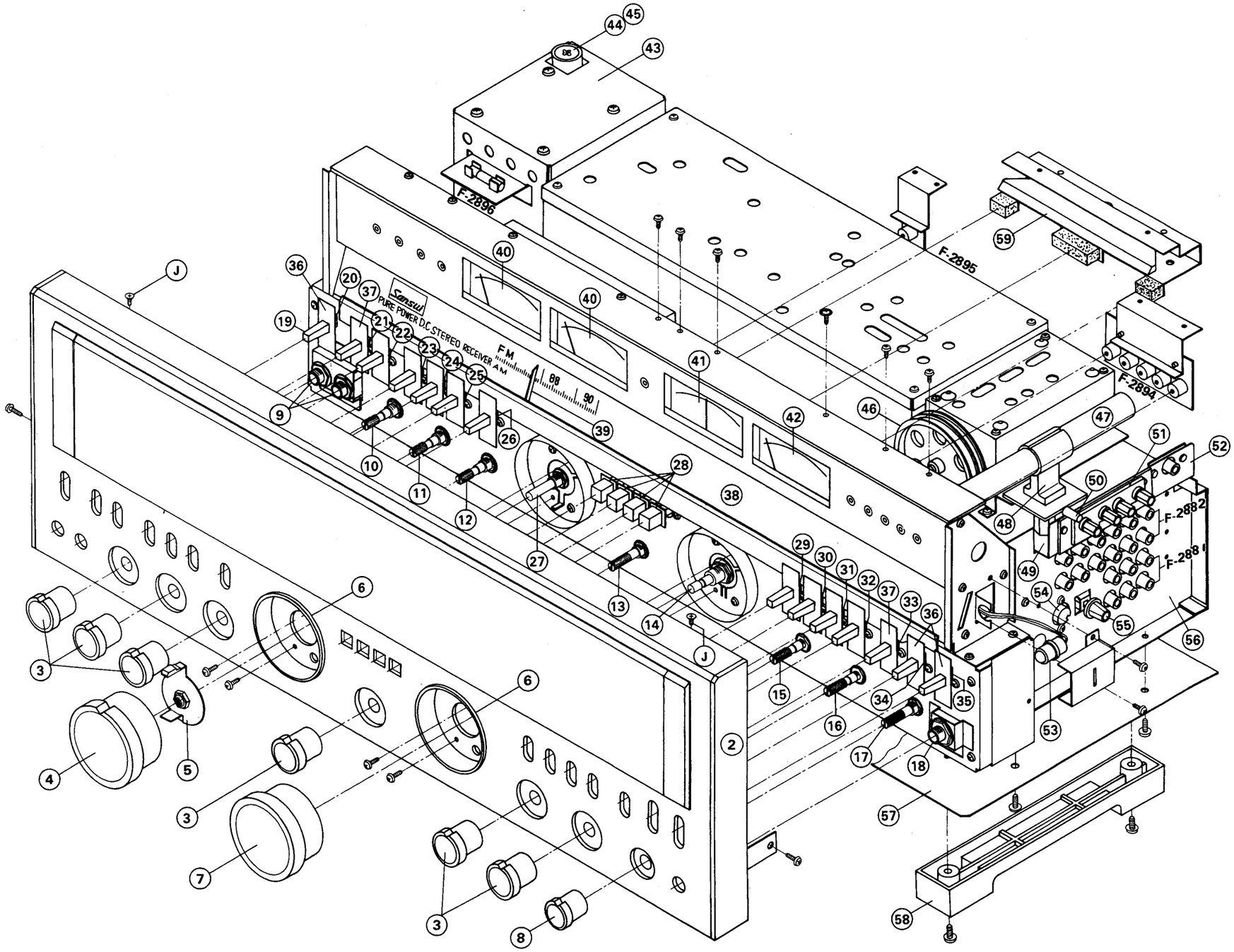
1. Disassembly of the Bonnet



Parts List

Parts No.	Stock No.	Description
	2450070	AC Outlet
	5006770	Bonnet, Power Amp
	5727111	Wood Bonnet, Tuner Pre-Amp
	3860220	12P Connector Socket
	2200300	2P Power Amp IN Terminal
	2230190	Ground Terminal
	5058970	Side Plate, L-CH
	5058980	Side Plate, R-CH
	5937650	Rear Dress Panel (Heat Sink)

2. Tuner & Pre AMP Section

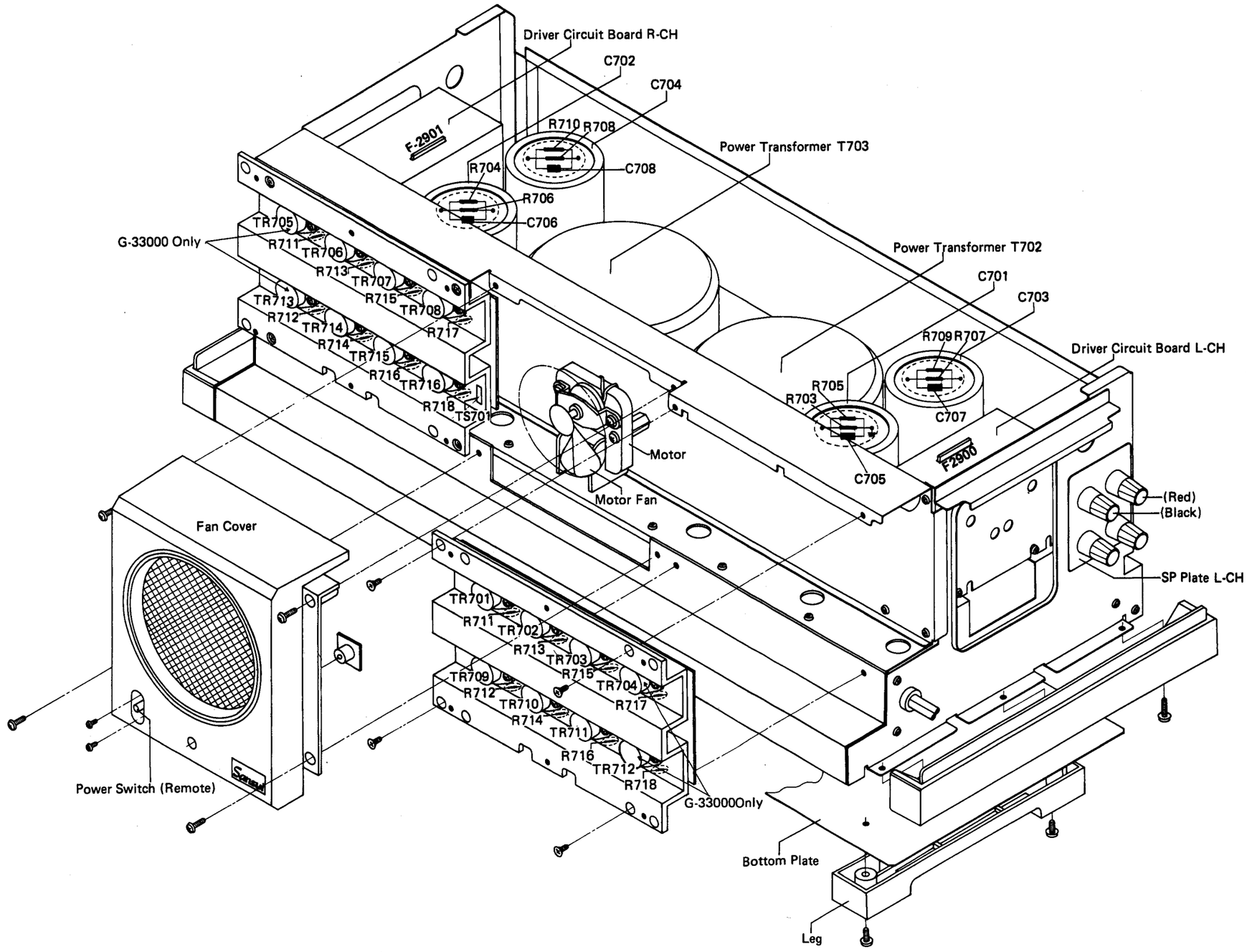


Parts List

Parts No.	Stock No.	Description
1	5727111	Wood Bonnet
2	7007870	Front Panel Ass'y
	5058831	Knob Cover
	5396380	Knob Ring
	5446370	Front Glass
	5517280	Dial Packing
3	5319110	Volume Knob, S-13 Type
4	5318990	Volume Knob, P-7 Type
5	7126030	Preset Unit
6	5396420	Knob Grill
7	5319000	Tuning Knob
8	5319090	Knob, Mic Mixing Level
9	2430390	Phone Jack
10	1015400	Bass Volume, 100kΩ (B) x 2
11	1015400	Midrange Volume, 100kΩ (B) x 2
12	1015400	Treble Volume, 100kΩ (B) x 2
13	1015340	Balance Volume, 250kΩ (MN) x 2
14	7036580	Tuning Unit
15	1103610	Impedance Selector
16	1103620	Selector
17	1090340	Mic Mixing Volume, 20kΩ (A) x 2
18	2430400	Mic Jack
19	5326700	Lever Switch Knob
20	1170510	Power Switch, Pre Section
21	1171780	Speakers Switch A
22	1171780	Speakers Switch B
23	1171800	Turnover Switch, Bass
24	1171780	Tone Switch
25	1171780	Turnover Switch, Treble
26	1171780	Audio Muting Switch
27	1090330	Volume, 150kΩ x 2, 10kΩ x 2
28	1131670	Accessory Switch
29	1171780	FM Muting Switch
30	1171780	FM Auto Noise Filter Switch
31	1171780	IF Band Switch, FM
32	1171780	IF Band Switch, AM
33	1171780	4-CH/NR Adaptor Switch
34	1171780	Tape Copy Switch
35	1171860	Tape Monitor Switch
36	5507270	Masking Sheet
37	5507270	Masking Sheet
38	5408440	Dial Glass <G-22000>
	5408430	Dial Glass <G-33000>
39	7116060	Dial Pointer
40	4301170	Peak Meter
41	4301160	Tuning Meter
42	4301150	Signal Meter
43	4002790	Power Transformer, pre-section
44	2300060	Fuse Holder
45	0432240	AC Fuse, 2A 250V
46	6146750	Dial Pulley
47	4200890	Bar Antenna
48	5280110	Antenna Holder
49	7126040	AM ANT Direction Adjusting Ass'y
50	7106130	Knob, AM ANT Direction Adjust
51	2210370	Antenna Terminal Board
52	2200290	455kHz Out Terminal, AM Stereo
53	0400560	Pilot Lamp, 8V 0.3A
54	2090030	Din Jack
55	2230190	Ground Terminal
56	5280130	Side Plate, L-CH
	5280120	Side Plate, R-CH
57	5066370	Bottom Plate
58	5507230	Leg
59	5446352	Illumination Pate
60	7396010	Coupling Parts (Hexagon Wrench, Screw, Washer)
61	5280640	Coupling Device, L-CH
	5280650	Coupling Device, R-CH
62	5280610	Side Frame, L-CH
	5280600	Side Frame, R-CH

Note:
The parts of No. ①, ㊵, ㊶ and ㊷ in the parts list above are indicated in the Disassembly of the Bonnet on page 21.

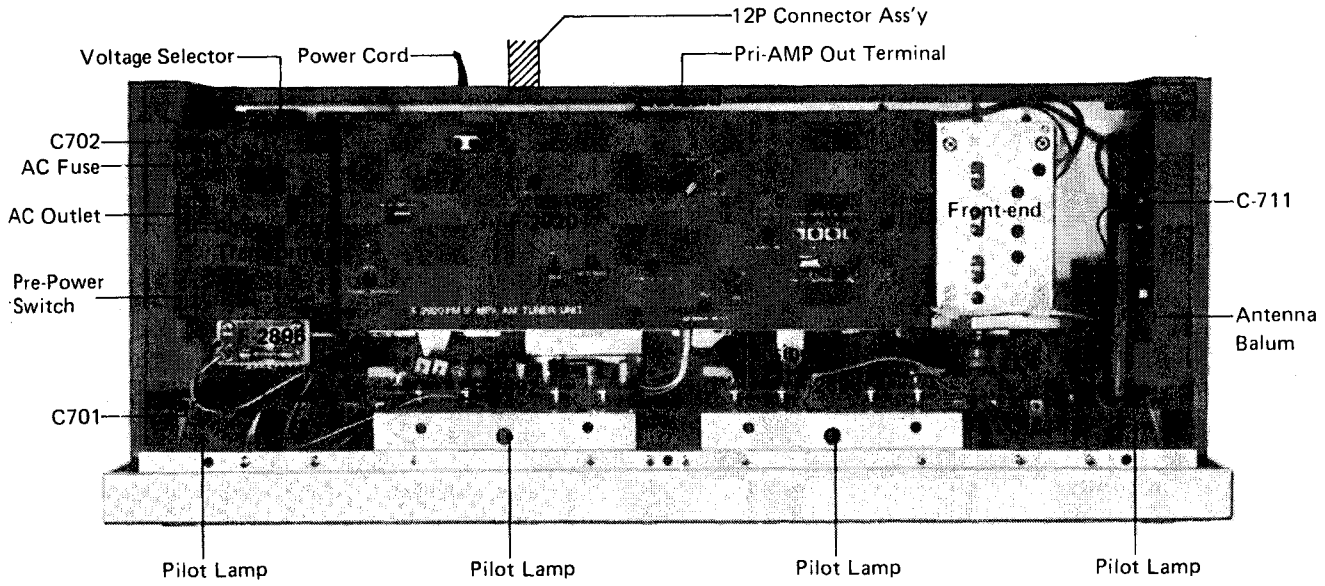
3. Power AMP Section



Parts List

Parts No.	Stock No.	Description
●Transistors		
TR701～08	0301010～2	2SA909 R, O, Y
TR709～16	0306630～2	2SC1586 R, O, Y
(TR704, TR705, TR712, TR713 . . . G-33000 only)		
C 701～04	0559848	15000μF 100V E.C.
C 705～08	0681003	1μF 250V M.C.
R 703～10	0202103	10kΩ 2W Ce.R.
R 711～18	0159130	0.33Ω 5W Ce.R.
T 702, 03	4002810	Power Transformer <G-22000>
	4002800	Power Transformer <G-33000>
TS 701	1900030	Thermal Switch
	6196020	Motor Fan
	4320570	Motor
	5076050	Fan Cover
	5066380	Bottom Plate
	5507230	Leg
	2230220	1P Speaker Terminal (Red)
	2230230	1P Speaker Terminal (Black)
	1171970	Main Power Switch
	5396480	SP Plate, L-CH
	5396470	SP Plate, R-CH

5-2. Top View of Tuner & Pre AMP Section



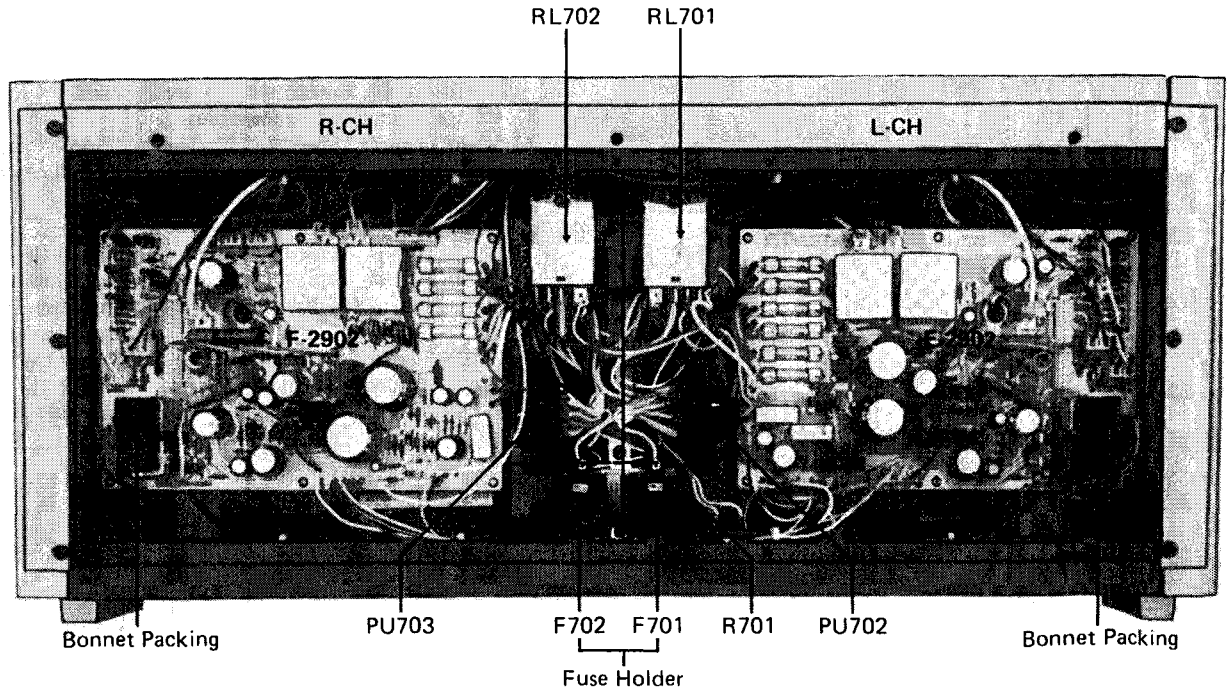
Parts List

Parts No.	Stock No.	Description
C 701	0605337	0.033μF 250V M.C
C 702	0659802	0.004μF 125V C.C.
C 711	0620682	6800pF 50V P.C.
S01(F-2906)	1110390	Pre Power Switch
PL 701 ~04	0400560	Pilot Lamp
T 701	4002790	Power Transformer

Parts No.	Stock No.	Description
F 701	0432240	AC Fuse, 2A 250V
	3800010	Power Cord
	3910600	Strain Relief, power cord
	3860210	12P Connector Cord Ass'y
	3910510	Strain Relief, 12P connector cord ass'y
	4290023	Antenna Balum

Parts No.	Stock No.	Description
	7136130	Tension Unit Ass'y
	2450080	AC Outlet
	2410091	Voltage Selector, plug
	2410830	Voltage Selector, socket
	2200300	Pre-Amp Out Terminal, 2P

5-3. Bottom View of Power AMP Section



Parts List

Parts No.	Stock No.	Description
R 701	0159110	3.9Ω 20W Ce.R.
RL 701, 02	1150450	Relay
F 701, 02	0431320	AC Fuse 10A 250V

Parts No.	Stock No.	Description
	2300060	Fuse Holder
PU 702, 03	2410091	Voltage Selector, plug
	2410830	Voltage Selector, socket

Parts No.	Stock No.	Description
	3800240	Power Cord
	3910490	Strain Relief, power cord
	5506970	Bonnet Packing

6. MAIN PARTS REPLACEMENT

6-1. Tuner Pre-Amp Section (Refer to Exploded View on page 21)

1. Replacement of Wood Bonnet

1) Loosen a pair of screws, A at rear panel.
2) Remove a pair of side panel fixing screws B .

2. Replacement of Side Frame (L-CH, R-CH)

1) Remove wood bonnet.
2) Loosen three (3) screws, C .
3) Pluck out a couple of short pinplugs for phone.
4) Remove the knob for bar antenna direction adjustment.
5) Loosen a couple of screws E , then a screw F .
6) Remove side frame.

3. Replacement of Front Panel

1) Remove bonnet.
2) Take off the three (3) flat head screws J. (Refer to Exploded View on page 22)
3) Remove a pair of fixing screws on both sides.
4) Pluck every knob out.
5) Remove pre-set unit for volume(⑤ in Exploded View on page22)
6) Take off the knob grilles for volume & tuning, then remove front panel.

6-2. Power Amp Section (Refer to Exploded View on page 21)

1. Replacement of Side Panel (L-CH, R-CH)

* Remove side panel when performing driver circuit board adjustment.

1) Loosen three (3) screws H .

2. Replacement of Rear Dress Panel (Heat Sink)

* To replace power transistor, cooling fan, indicator and switches for power section, remove rear dress panel first.

1) Loosen six (6) screws I .

7. NOTES ON TROUBLESHOOTING

1) Newly designed driver stage in this unit has large current driving capability to next stage. Even if one of transistors on driver stage (TR12 ~ TR15) and power stage (TR701 ~ TR712) become malfunction, abovementioned transistors are recommended to replace all simultaneously due to the deterioration themselves by influence of instantaneous larger current into both driver and power stage.
   As this driver stage is operated by high voltage (86V ~ −86V), the check on this stage should be avoided while power switch stays ON. Followings are resistors which may be also damaged by excessive current occurred through shorted transistor(s) and others on driver stage.
   4.7Ω 1W Base resistor for Power transistor (F-2904)
   0.33Ω 5W Emitter resistor for Power transistor (F-2904)
   560Ω 1/2W resistor R37, R38 on Driver Stage (F-2900, F-2901)
   10Ω 5W resistor R41, R42 for Phase compensation (F-2902, F-2903)
2) The reason when power fuse is blown out, is mostly dependent upon malfunction of power transistor(s), so that it is recommended to replace the power transistor(s) and moreover to check the driver stage. In this case, if only the fuse is changed without any replacement of defective transistor(s), resistor, R701 of inrush absorber might be opened, resultly relay, RL702 could become damaged by inrush current.
3) When connecting Pre & Main amplifier section, following attention must be paid. Namely, do not connect or disconnect pin-to-pin shilded wires between PRE-OUT and POWER-IN terminals on the back panel of this unit while power switch stays ON because it causes the malfunction of power transistor(s), or damages speaker(s) that is connected with speaker terminal.
4) The specific tone volume is employed for this new type tone control circuit. The slide contact of this volume detaches completely only when the knob of this volume is at the center position resultly center tap becomes open. (The flat frequency response is obtained at the center position of tone volume)
5) Since there are a couple of voltage selectors on power amp section and a voltage selector on tuner section, please confirm whether three voltage settings are properly met with a rated voltage when switching these plugs.
6) When whole IFT of T52, T53, T54, and T55 are replaced or IF adjustment is extremely deviated, note the followings on AM-IF adjustment.
   A) Make the core of IFT be as follows.
      1) Turn the core of T52 completely counterclockwise.
      2) Turn the core of T54, T55 completely clockwise.
   B) Connect genescope and observe the wave-form. (Fig. 3-3)
      1) Adjust T53 to make the wave-form as Fig. 7-1.
      2) Equalize the level on both points ±10 kHz from center frequency to adjust T52 and T54 (Fig. 7-2, 7-3O)
      3) Turn a core of T55 to make the wave-form as Fig. 7-4.

Fig. 7-1

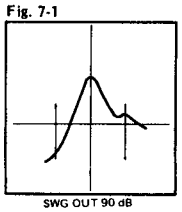


Fig. 7-2

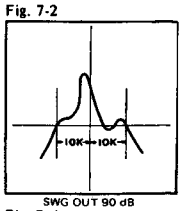


Fig. 7-3

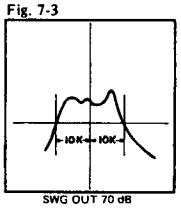
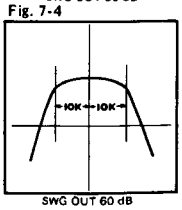
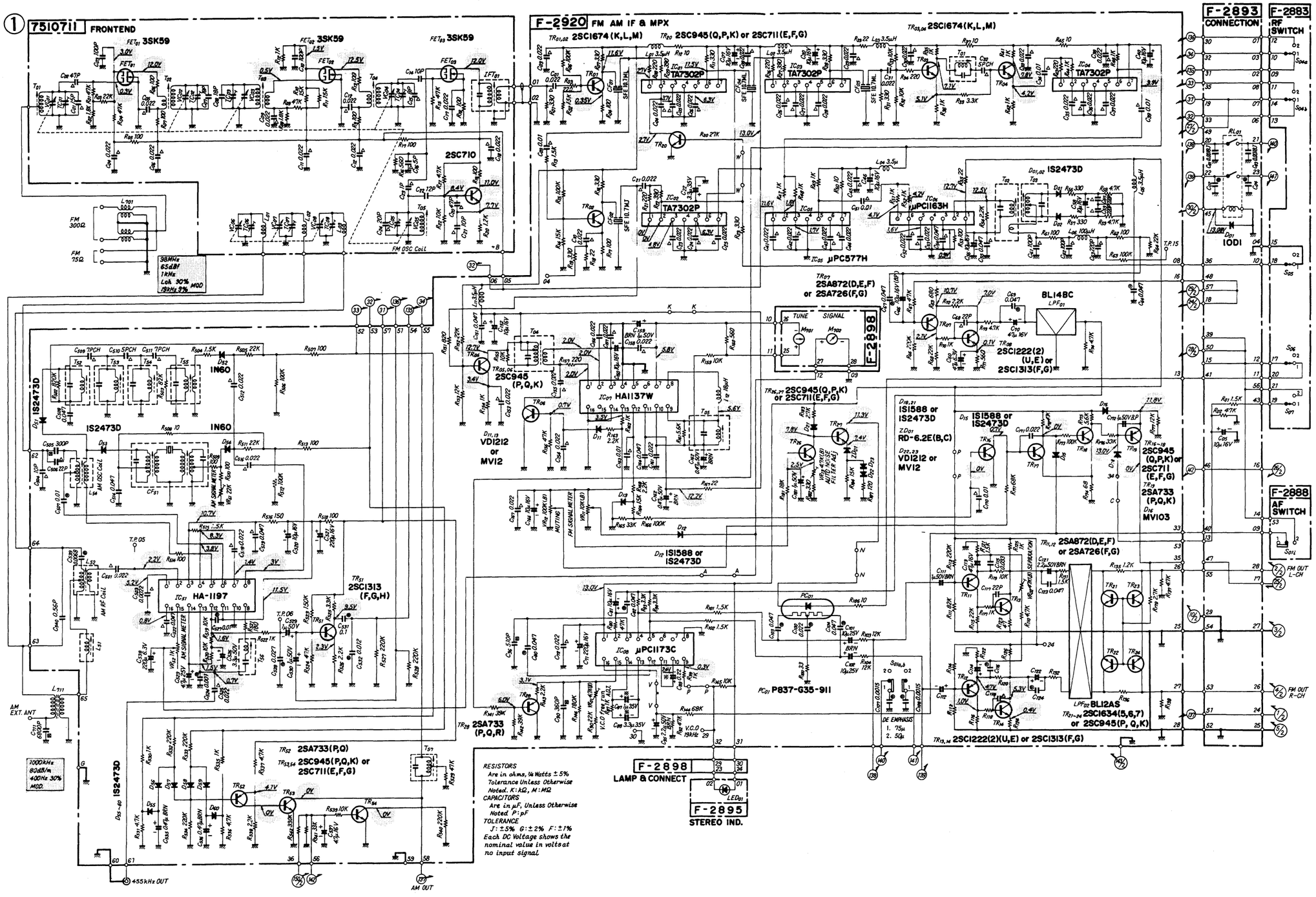


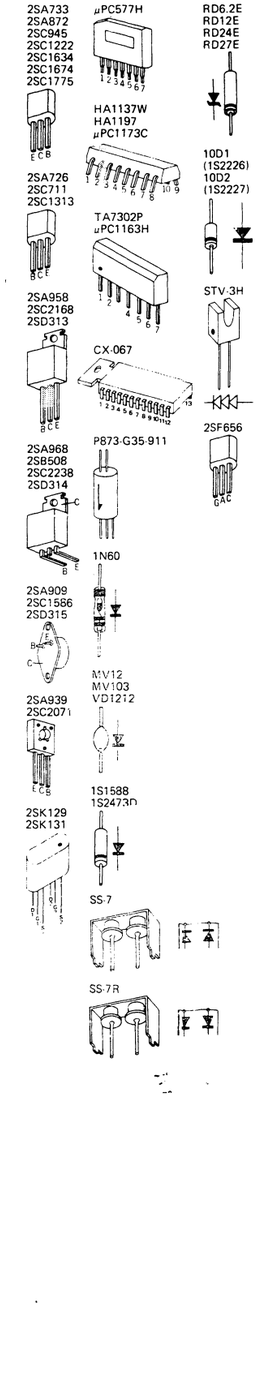
Fig. 7-4



8. SCHEMATIC DIAGRAM

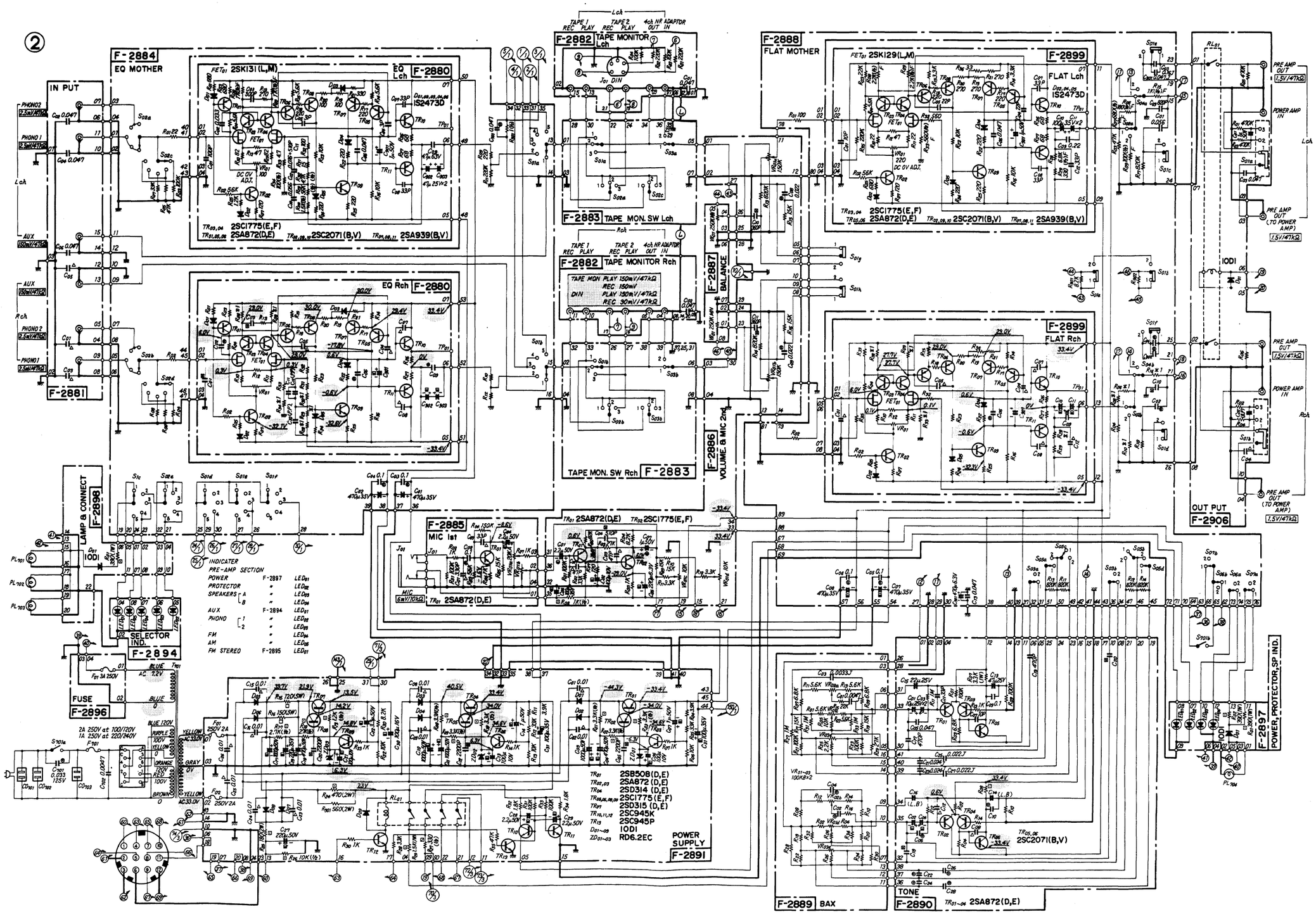
8-1. Tuner Section <G-22000/G-33000>





* Design and specifications subject to change without notice for improvement.
* La présention et les spécificaitons sont susceptibles d'éter modifiées sans préavis par suites d'améliorations éventuelles.
* Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

8-2. Pre AMP Section <G-22000/G-33000>



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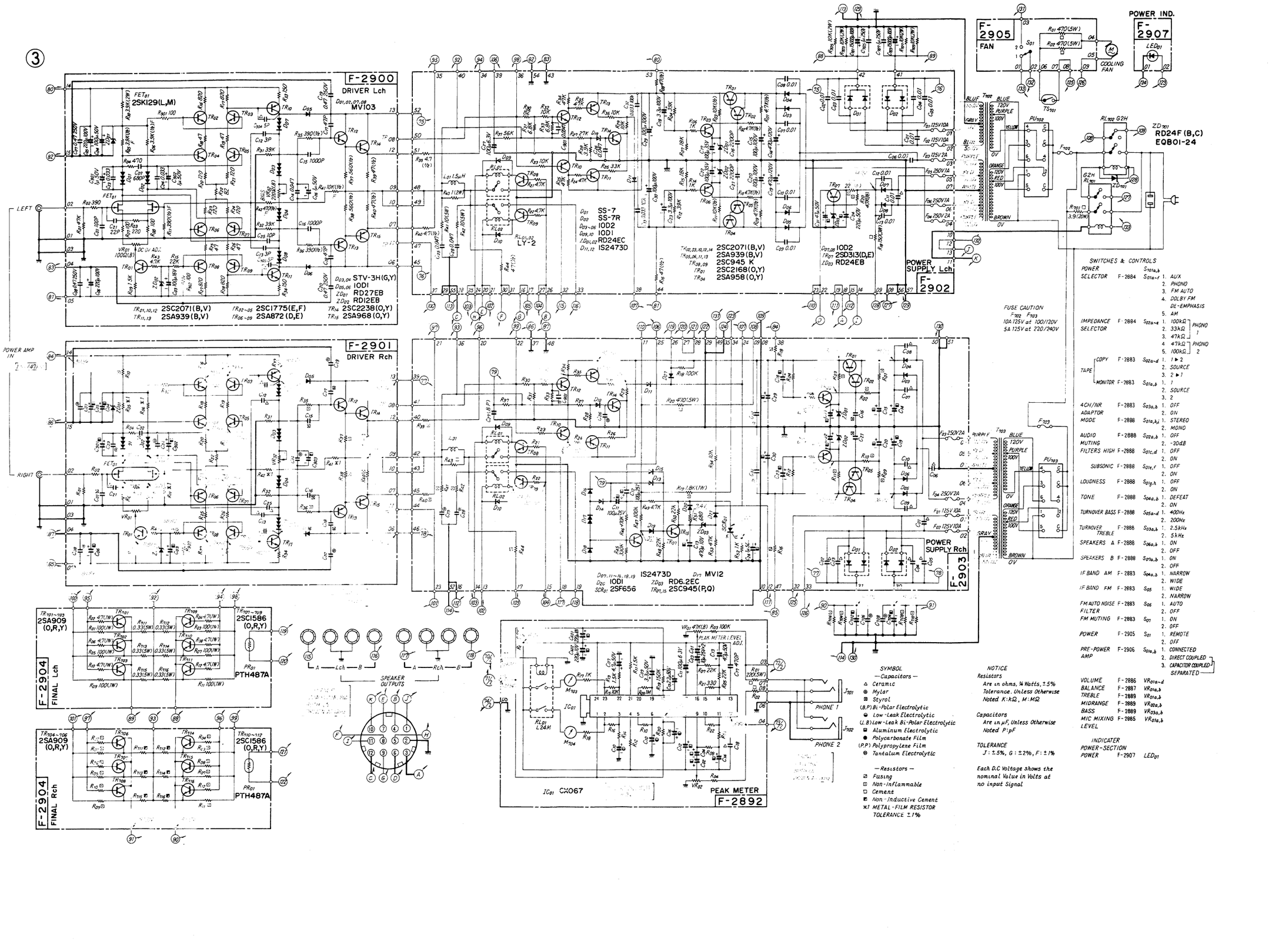
* La présention et les spécificatlons sont susceptibles d'éter modifiées sans préavis par suites d'améliorations éventuelles.
* Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

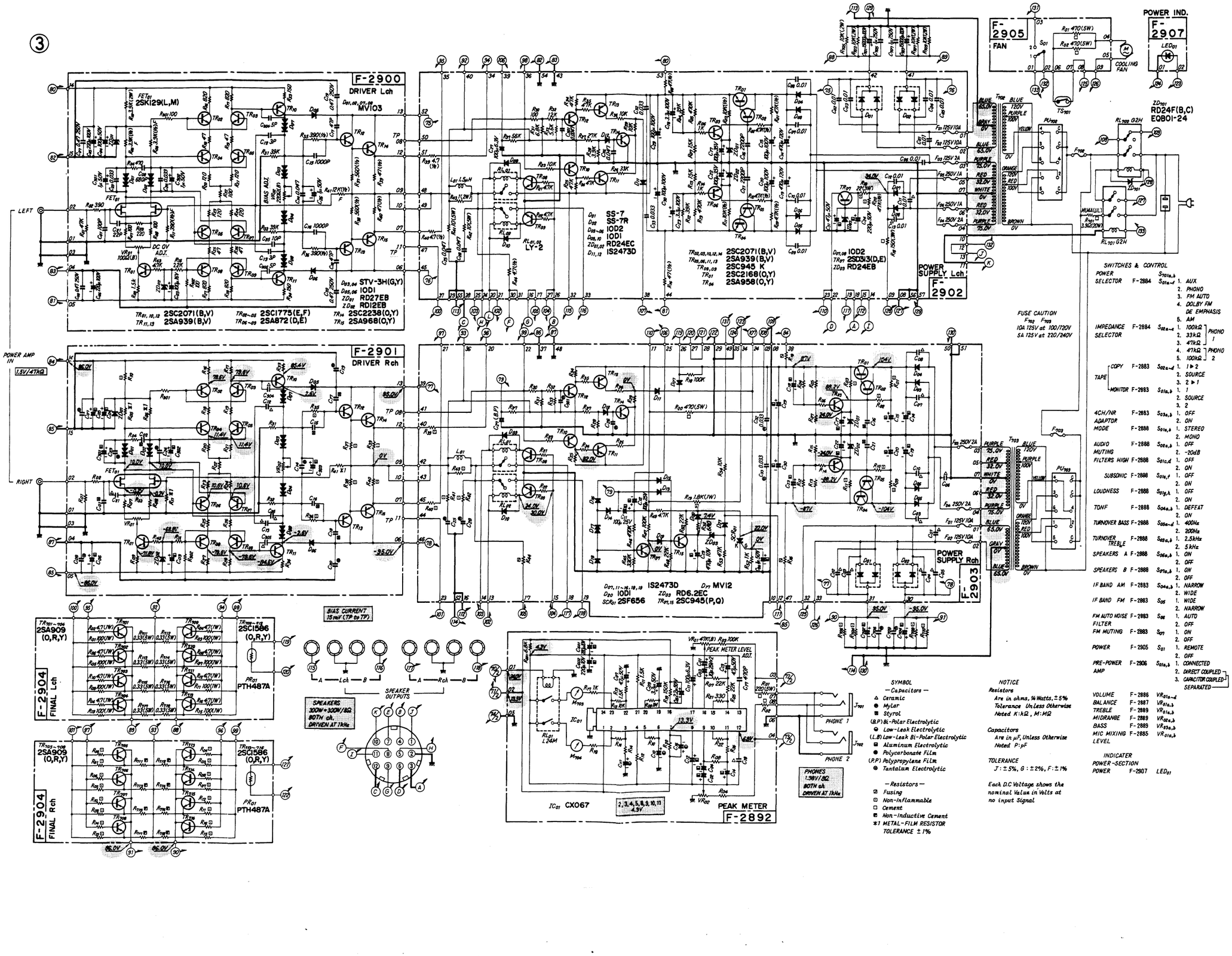
8-3. Power AMP Section <G-22000>



A	B	C	D	E	F	G	H

1 2 3 4 5

8-4. Power AMP Section <G-33000>



9. THREADING OF DIAL CORD

*If a dial cord is cut off or slips, replace it by following procedures.
As this unit uses 0.5 mmϕ cord, please replace it with the same type certainly.
*The length of dial cord is approximately 170 cm (66.9 inch).

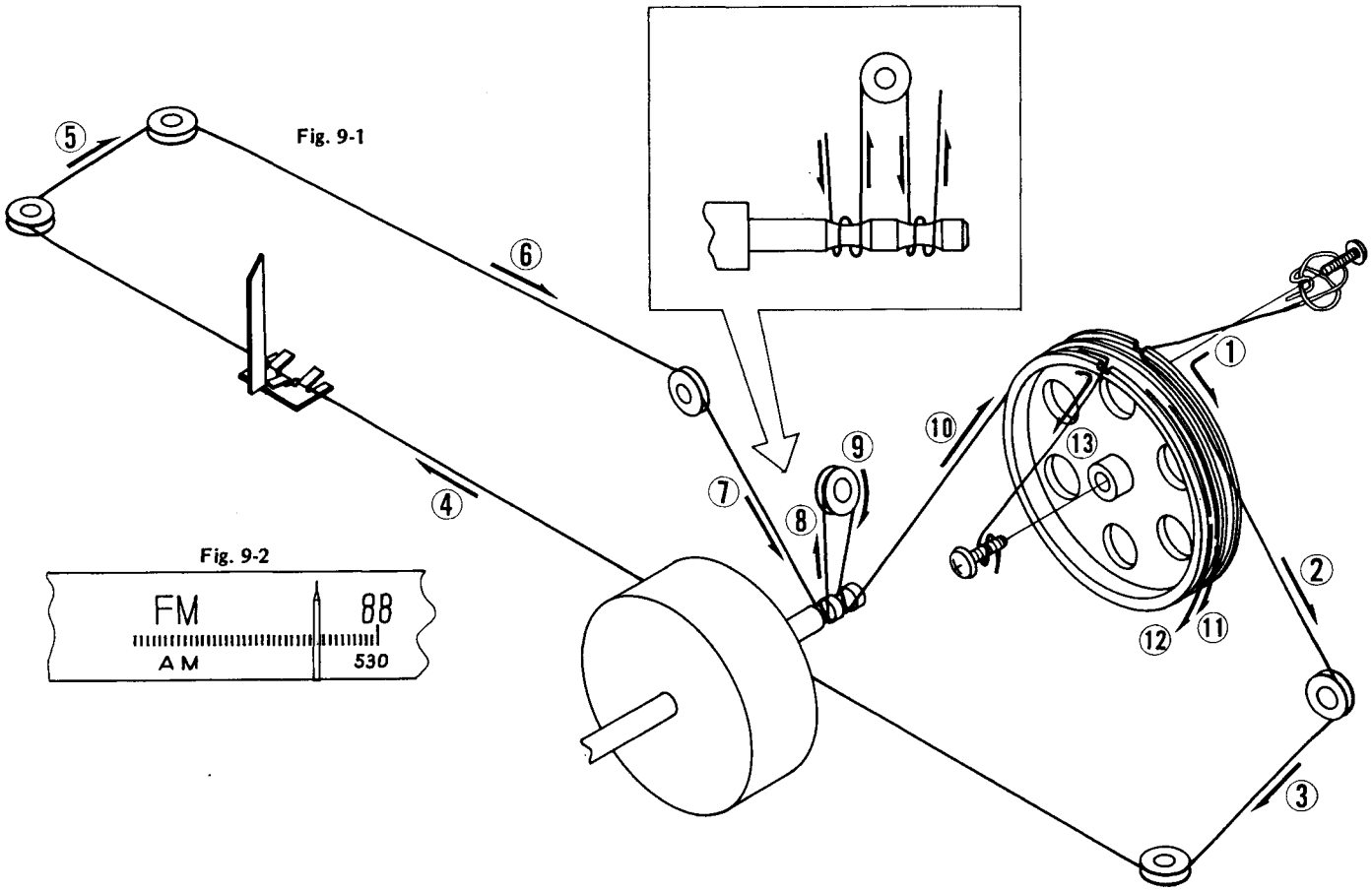


Fig. 9-1

Fig. 9-2

9-1 Threading of Dial Cord

Thread the dial cord in numerical order from 1 to 13 as Fig. 9-1.
*Close the variable capacitor completely.

Stock No.	Description
6036050	Dial Cord (0.5 mmϕ)
6146750	Dial pulley

9-2 Attachment of Dial Pointer (See Fig. 9-2)

1) Close the variable capacitor completely.
2) Set the indication to the start point, the line at the left edge of the dial scale.

*Confirm that the dial pointer runs smoothly on the dial scale by turning the tuning shaft.

10. PACKING LIST

<Power Amp Section>

<G-22000>

Parts No.	Stock No.	Description
1	9116750	Vinyl Cover
2	9028170	Styrofoam Packing
3	9000530	Carton Case
4	5996080	Curl Stopper

<G-33000>

Parts No.	Stock No.	Description
1	9116750	Vinyl Cover
2	9028170	Styrofoam Packing
3	9001040	Carton Case
4	5996080	Curl Stopper

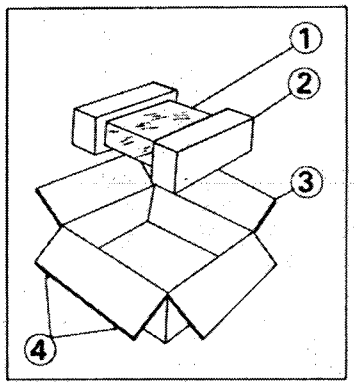
<Tuner & Pre Amp Section>

<G-22000>

Parts No.	Stock No.	Description
1	9116750	Vinyl Cover
2	9028180	Styrofoam Packing
3	9000520	Carton Case
4	5996080	Curl Stopper

<G-33000>

Parts No.	Stock No.	Description
1	9116750	Vinyl Cover
2	9028180	Styrofoam Packing
3	9001030	Carton Case
4	5996080	Curl Stopper



11. ACCESSORY PARTS LIST

Stock No.	Description
3810280	PJP Cord 2 pcs.
2410560	Short Pin Plug 2 pcs.
3820100	FM Antenna 1 pcs.
7396010	Coupling Parts (Hexagon Wrench, Screw x 4, Washer x 4)
9237780	Schematic Diagram <G-22000>
9237860	Schematic Diagram <G-33000>
9202880	Operating Instructions <G-22000>
9203760	Operating Instructions <G-33000>

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